



**Town of Vienna
Department of Public Works**

Traffic Calming Study



**April 2008
Final Report**



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Executive Summary

The Town of Vienna, Virginia is an independent town within Fairfax County. Located in close proximity to the nation's capital, Tysons Corner (the second largest retail area on the East Coast), and the Dulles Corridor, now home to one of the nation's most successful hi-tech corridors, Vienna lies within a region of tremendous growth. Additionally, the town benefits from access to several major highways, including Interstate 66 (I-66), Interstate 495 (I-495), VA-267 (the Dulles Toll Road), and US-50. This combination of excellent transportation access and enviable location within an economically vibrant region enables Vienna to retain a healthy residential and business community.

Yet Vienna's desirable location, ease of access to key transportation corridors, and active business environment also result in traffic, particularly from drivers who travel through the community. In particular, this pass-through traffic was viewed as negatively impacting residential neighborhoods as commuters speed along residential streets to bypass more congested roadways. In response, the Town of Vienna initiated a traffic calming study to identify and examine how the community could maintain mobility while also protecting its residential communities from high-speed traffic.

To accomplish this study, the Town acquired the services of ATCS, a local transportation consulting firm. ATCS was tasked with describing and quantifying current issues surrounding cut-through traffic, and recommending appropriate remedial measures, referred to as "traffic calming." The study focused on residential or local streets, not on the arterials designed to efficiently carry higher traffic volumes. It should be noted at the outset, then, that the report did not focus on congestion concerns; these issues were peripherally examined to the extent that they caused cut-through traffic and negatively impacted local neighborhoods.

ATCS collected data for the study between the spring and fall of 2007. Specific study tasks approved by the Town of Vienna to be performed by ATCS included:

- Meeting with the Transportation Safety Commission, which included a public hearing where citizens voiced concerns for volume and speed;
- Setting up traffic counters at ten locations that have been prioritized by the Town to identify the speed and volume of traffic;
- Conducting an origin-destination survey at three locations and quantifying the percentage of cut-through traffic;
- Finding the efficiency of five speed humps by performing a before and after studies;
- Recommending traffic calming measures to alleviate the issues identified in the above tasks; and
- Developing GIS layers for speed humps turn restrictions, and stop signs with relevant information added as attributes.

Based on these cumulative efforts, ATCS found the following:

- No locations qualify for speed reduction measures. Speeds on the local streets in Vienna fall below VDOT and Town guidelines for traffic calming, with average and 85th percentile speeds below the 30 mph threshold.
- Seven Town streets analyzed in the study are eligible for volume reduction measures based on the Town's threshold of 2,000 vehicles per day as established in *The Citizen's Guide to Traffic Calming*. Of these, Church Street NE/NW, Tapawingo Road SE, and Locust Street SE function as collector or local streets yet carry volumes above 5,000



- vehicles per day, warranting traffic calming under VDOT guidelines. Given the urban nature of the Town, VDOT's guidelines have been used in this study.
- Recently installed traffic calming devices have effectively reduced speed at five locations identified by Town staff. All locations operate within Town and VDOT speed thresholds.

To address speeding issues, ATCS generally recommends:

- Establishing Residential Districts for speeding areas of concern, adding \$200 fine to existing speeding fines.
- Creating standard operating procedures that quantify speed and volume problems prior to installation of traffic calming devices.
- Following up with data collection to quantify speed and volume of traffic at least six months after the device is installed.
- Establishing a proactive traffic monitoring program either through the Police or Public Works Department to monitor speeding on high priority streets, while using the same resources to respond to resident concerns on the same issue.
- Developing an education and enforcement program for speeding to address resident concerns on streets that do not meet Town or VDOT thresholds and thus not warrant engineering solutions for speeding but contain isolated problems in which these strategies will eliminate speeding.
- Establishing a traffic calming CIP project that funds speeding devices for priority locations in the Town.
- Experimenting with speed control devices other than speed humps (12 or 22 foot) to improve pedestrian safety and slow speeds. Examples include medians with pedestrian refuges and bump-outs (narrowing from the curb inward).
- For streets with speed problems that either (a) ineligible for physical speed control devices, or (b) have constructability constraints, apply permanently mounted speed sensor signs to reduce speeds. Residential collector streets would be the best use of this speed reduction tool.

Additionally, ATCS made the following roadway-specific recommendations:

- On Marshall Road near Nutley Street, although the road does not qualify for an engineering solution to speeding problem, targeted enforcement by time-of-day will help reduce speeding during the peak travel periods.
- Ross Drive, which experiences speeding problems when activities are underway at Yeonas Park, could benefit from select police enforcement and informative signs at the park to target that group of drivers.
- Although not part of the original study, based on data supplied to ATCS by Commissioner Kenney, ATCS concluded that speeding poses a concern on the 200 block of East Street NE. The street also presents challenges for pedestrians due to limited sight



distances and roadway design issues. Providing crosswalks, a median pedestrian refuge, and a pedestrian beacon could cumulatively improve safety and slow traffic.

- Church Street, NE which acts as a portal to the Town's business district and carries cut-through traffic. Additional humps spaced approximately 400 feet apart could maximize speed reduction on this heavily traveled residential street. When spacing the speed humps, revisit the location of the existing speed hump and relocate it if possible away from the crest of the hill.

In examining roadway volumes, ATCS found:

- Local streets eligible for volume reduction measures based on VDOT's threshold of 4,000 vehicles per day include Church Street, NE/NW, Tapawingo Road, SE, and Locust Street, SE.
- Streets eligible for volume reduction measures based on *The Citizen's Guide to Traffic Calming in Vienna* threshold of 2,000 daily vehicles include: Tapawingo Road, SW, Nutley Street, NW, Marshall Road, SW, Locust Street, SE, and Church Street, NE.

To address roadway volume concerns, ATCS recommends the following:

- Typical volume control measures cannot be used on Church Street (7,000 vehicles per day) due to the connectivity the residential portion of the street has with the business district. Although the road is designated a collector street, it is quite narrow and possesses minimal pedestrian amenities. However, the speed humps proposed in the volume recommendations will slow and deter traffic.
- The Town should consider restricting turns onto Marshall Road during peak periods to eliminate cut-through traffic.
- The Town should carefully evaluate the application of volume reduction remedies on Cottage Street, Beulah Road, Follin Lane, SE, Lawyers Road, and Park Street due to the fact that each is designated a minor arterial street, a designation traditionally shown in comprehensive plans that is reserved for roads carrying high traffic volumes.
- Based on testimony and analysis, the Town should carefully consider whether collector streets such as Tapawingo Road, Nutley Street, and Locust Street that carry high volumes of traffic should continue in that capacity. Any modifications to the function of these streets may simply shift the problem to other residential streets. If the Town desires to make modifications, the Town should consider turn restrictions by time of day to reduce cut-through traffic.
- Cut-through traffic on Park Street SE and Kingsley Road SE/SW is high (30%), but does not qualify based on the Town's *Citizen's Guide to Traffic Calming in Vienna*. The guide establishes 40% or more as a threshold for cut-through traffic, but does not account for roadway volume over the day. ATCS recommends that volume thresholds be established to complement the percentage performance measure.

Lastly, ATCS offers the following general recommendations with respect to the Town of Vienna's ongoing efforts to maintain high levels of both mobility and livability:

- Continue to use speed devices for speeding and volume control devices for cut-through traffic locations; and



- Use the “3 E’s” of education, engineering, and enforcement to address various levels of speed and volume problems.
- Update the Town’s *Citizen’s Guide to Traffic Calming in Vienna* with respect to very specific speed and volume thresholds by street type.



Introduction

The Town of Vienna is located in Fairfax County and, as an independent town, has authority over the development within its corporate limits. As a fully developed town that has experienced rapid growth in the last 20 years, Vienna faces unique challenges in reducing congestion while improving traffic flow and increasing pedestrian safety. Traffic calming measures are necessary to manage cut-through traffic and speeding problems, and may actually beautify the community if done carefully. It is also important to note that Vienna traffic conditions cannot be looked at in isolation but should take into account the impact on and from the surrounding areas Fairfax City and County.

Beginning in 1998, the Town employed traffic calming efforts in residential and commercial areas. Installations of traffic calming devices have been present for a number of years, such as the modified speed humps located at Patrick Street S.W. The Transportation Safety Commission has been discussing completing a traffic calming study since 2002, when issuing *The Citizen's Guide to Traffic Calming in Vienna*. In the November 26, 2002, minutes of the Transportation Safety Commission meeting, the Commission recognized the need to address traffic calming as a town-wide issue and not in isolation, which may serve only to divert problem traffic from one road onto another. Citizens hope traffic calming devices will preserve the quality of life in the community.

This study takes a comprehensive approach to assess residential street speeding and cut-through traffic, within the scope outlined below. Throughout this traffic calming study, ATCS compares priority residential streets (identified by Town staff) to the criteria set forth in *The Citizen's Guide to Traffic Calming in Vienna*.

As part of a Town comprehensive traffic calming assessment, the Town hired ATCS to perform the following tasks:

1. Meet with the Town Transportation Safety Commission and Town staff to identify roadways of concern
2. Collect traffic count data at up to ten locations and conduct license plate surveys at up to three locations to quantify problem areas
3. Evaluate traffic count and license plate survey data, and compare it to Town traffic calming guidelines
4. Recommend solutions
5. Develop cost estimates for up to five locations
6. Draft a report and meet with Town Council, Transportation Safety Commission, and staff
7. Finalize the report based on Town Council and staff feedback

Task 1: Meet with the Town Traffic Safety Commission and Town Staff to identify Roadways of Concern

Scope:

ATCS will meet with Town staff and the Traffic Safety Commission to layout a strategic plan for identifying roadways of concern and existing traffic calming devices to perform "after" studies (two meetings).

Tasks Completed:

ATCS met with Town staff on March 8, 2007, to layout a strategic plan for the study and identify roadways of concern. ATCS also met with the TSC on June 26, 2007, to listen the Commission and public's concerns. Other meetings took place on June 4, July 6, July 10, August 27,

Town of Vienna: Department of Public Works

Traffic Calming Study



November 9, and December 12. Below are the minutes from the kick-off meeting and TSC meeting.

MEETING DATE: March 8, 2007

ATTENDANCE:

- Aileen Santiago, Civil Engineer, Town of Vienna
- Jeff Tufano, Traffic Signal Electrical Technician, Town of Vienna
- Chad Charles, Traffic Signal Electrical Technician, Town of Vienna
- Sergeant Michael Reeves, Town of Vienna Police Department
- Larry Marcus, Project Manager, ATCS, P.L.C.
- Jose Rodaniel Cruz, Transportation Planner, ATCS, P.L.C.

MEETING MINUTES:

Introduction:

- Town of Vienna met with ATCS on Tuesday, March 8, 2007, for a City-wide Traffic Calming Study kickoff meeting.
- The Town and ATCS outlined the following items for discussion: data collection methods, specific areas/locations of concern for speeding and congestion, public outreach, and the established speed and volume criteria for traffic calming measures.

Data Collection:

- Traffic signal electrical technicians collect traffic data using Roadway Data traffic counters.
- Sergeant Michael Reeves can obtain Time/Speed Report, Time Study Report, Classification Study, and 85th Percentile Study for speed reports.
- Mr. Tufano mentioned that volume counts are mostly collected to adjust signal timing.
- Ms. Santiago suggested that ATCS monitor Beulah Road Project to ensure the construction does not skew the data.
- ATCS and Ms. Santiago agreed that an inventory of all existing access restrictions is necessary to prevent negating the purpose of the restrictions. Ms. Santiago and Mr. Charles and Tufano will provide an inventory of all existing access restriction locations to ATCS.

Study Locations:

- As a result of congestion along Maple Avenue, Park Street is the street of most concern for both speeding and congestion.
- The main cut-through traffic is caused by vehicles exiting Interstate 66 (I-66) at Nutley Street/VA-123 (North) to reduce the travel time to Tysons Corner.
- Main cut-through areas are through the Southwest and Southeast quadrants.
- The group prioritized locations for monitoring speed and cut-through traffic. The locations are shown below.



Table 1 – Prioritized Study Locations:

	<i>Speed</i>	<i>Volume</i>	<i>Pedestrian</i>
1	Park Street – S.E. Section	Follin Lane (between 4-6 P.M.)	Lawyers Road (between Maple Avenue and Wilmar Place)
2	Beulah Road	Park (Between Locust Street and Maple Avenue)	
3	Lawyers Road	Lawyers Road (between Maple Avenue and Wilmar Place – A.M.)	
4	300 Block of Courthouse Road	Courthouse Road (between Maple Avenue and Locust Street)	
5	Follin Road (Near Hine Street)	Center Street (between Maple Avenue and Locust Street – A.M.)	
6	1100 Block of Maple Avenue	Nutley Street (between Maple Avenue and Commons Drive)	
7	Tapawingo Road	Lawyers (between Upham Place and Blackstone Terrace – P.M.)	
8	Old Courthouse Road	Nutley (between Maple Avenue and Roland Street)	
9	Cottage Street (between Patrick Street and Ross Drive)	700 Block of Windover Avenue (at the School, between Nutley Street and Windover Avenue)	
10	Malcolm Road	Old Courthouse Road – A.M.	

Possible Solutions to Congestion and Speeding:

- ATCS suggested traffic calming public education strategies (ex: speed signs, fine increase for speeding violation, newspaper reports of fine increase/speed limit enforcement, etc...) to supplement the engineering and enforcement strategies.
- Town staff and ATCS discussed traffic calming engineering possibilities (ex: signal modifications that discourage cut-through).

Public Outreach:

- ATCS discussed the following as possible outreach strategies:
 - Advertise to Town of Vienna through flyers, media, newspaper
 - Split the public into their residency quadrants (specific to the areas of concern)
 - Share the collected data with each quadrant
 - Gain input from the public
 - Gain a consensus on major streets of concern
 - Evaluate the input and data together to determine priorities
 - Implement the 3 E's: Engineering, Enforcement, Education

Eligibility Criteria (to evaluate severity of speeding and volume problems, not to revise criteria):

- ATCS and the Town discussed the existing *Citizen's Guide to Traffic Calming in Vienna* and its established eligibility criteria for traffic calming implementation.
- Two possible strategies were identified:
 1. Keep the existing guidelines and prioritize major streets of concern (by ranking the streets from 1 (least concern) to 10 (most concern)).
 2. Modify the guidelines to have a higher speed criteria for neighborhood streets (ex: 7-9 mph) to narrow down the streets with significant congestion and speeding concerns.



Town of Vienna staff to provide ATCS with the following information:

- Locations of existing access restrictions.
- GIS data/aerial photography.
- Locations of existing traffic calming devices.

ATCS to provide Town of Vienna staff:

- Based on information provided at the kick-off meeting, ATCS will develop a list of speed and cut-through traffic locations to conduct traffic counts. Town staff will review/prioritize list and return it to ATCS. ATCS will use the list to prioritize data collection efforts (Table 1).

Meeting 2: TSC Meeting

Town staff scheduled a public hearing with the Transportation Safety Commission on June 26, 2007. Presented a PowerPoint presentation on the study, and opened the floor for comments from the audience at TSC. ATCS noted the following comments and suggestions:

Town of Vienna
Public Hearing
8:00 P.M.
Tuesday, June 26, 2007

MEETING MINUTES

Citizen Concerns and Contributions:

- (1) **Citizen:** Chuck Rossi, crossi@meltechcorp.com

Concern/Contribution #1: Pledge Car Program support and implementation

Summary: This citizen wishes to implement what is known as the “Pledge Car” Program within the Town of Vienna. The implementation would require no official support from the Town, but rather would be an independent-lead program. The idea of the Program is to get Town citizens to sign a pledge that they will drive at or below the posted speed limits. All who pledge will affix a bumper sticker with the words, “Pace Car.” The idea is that if enough people pledge, the Town will become a safer place for motorists, pedestrians, bikers, and playing children. Support will be sought from schools, churches, police department, etc. This citizen spoke to make people aware he would be trying to implement this program and to sign up to formally speak at the following month’s Town public hearing.

Comment: Potential for good success. Not related to the ATCS Traffic Calming Study.

Concern/Contribution #2: No Left Turn (except by Permit) on 123 SB during evening rush hour.

Summary: This citizen wishes that the Town consider implementing a No Left Turn except by permit on Route 123 Southbound during the evening rush hour. The intent would be to reduce cut-through traffic on residential streets for vehicles traveling from Route 123, Maple Avenue, to Route 236, Nutley Street and intending to avoid congestion. The Permit would be the Town sticker so that only Town residents could legally make the left turns. The citizen had conducted several independent traffic studies to support his recommendation. The Transportation Safety Commission (TSC) did not support the citizen recommendation because of the fact that there are a



lot of non-Town residents that travel into the Town to conduct business (doctor appointments, youth sports, dry cleaning, etc...).

Comment: Agree with TSC that it would not be fair for those conducting business in the Town. Not related to ATCS work.

Concern/Contribution #3: Establishing Residential Districts where speeding would have an additional \$200 fine.

Summary: This citizen recommends erecting signs to label neighborhoods as “Residential Districts” with signs communicating that there is an additional \$200 fine for speeding in these established areas. The citizen based his recommendation on several independent traffic studies and researching best practices in the metropolitan area.

Comment: A good idea that could certainly help if you have the Police available to enforce.

(2) **Citizen:** 715 Marshall Drive

Concern/Contribution #1: Excessive speeds on Marshall Road at the intersection with Nutley Street.

Summary: This citizen expressed concerns of vehicles speeding on Marshall Road in the direction of Nutley Street in order to pass through the intersection before the red signal light. As a result, this citizen has seen two cars totaled and mailboxes consistently destroyed by these speeding motorists. The citizen also complained that motorists impede crosswalks at that intersection. This intersection is adjacent to an elementary school, further raising pedestrian safety concerns

(The citizen provided a letter, and photographs showing a high volume of pedestrians, to further demonstrate the need for traffic calming at the intersection.)

Comment: This is a road to consider in the ATCS Traffic Calming Study; an invisible traffic light for this intersection is also suggested.

Concern/Contribution#2: Missing handicap ramp at intersection of Marshall Road and Nutley Street.

Summary: This citizen expressed need for a handicap ramp at this intersection.

Comment (KK): This is a valid concern, though. Not directly related to the ATCS Traffic Calming Study. It is recommended that this concern be forwarded to the Town Department of Public Works.

(3) **Citizen:** 1001 Rachel Lane

Concern/Contribution: High volumes on Marshall Road.

Summary: This citizen expressed concerns of high traffic volumes on Marshall Road as drivers commute from Merrifield to the Vienna Metro.

Comment: Related to (2) above. This is a road to consider in the ATCS Traffic Calming Study.

(4) **Citizen:** Foley, 513 Council Court NE

Concern/Contribution #1: Excessive speeds on East Street, NE between Maple Avenue and Ayr Hill Avenue, NE.

Summary: No elaboration.

Comment (KK): This is a valid concern, but average weekday traffic is lower on this road compared to other potential study roads. Therefore, it *could* be considered for the ATCS Traffic Calming Study, but it probably will not be because there are other streets of the same concern with higher volumes.



Concern/Contribution #2: Excessive speeds on Church Street, NE between East Street, NE and Beulah Road, NE.

Summary: The citizen described this section of Church Street as being very wide thus encouraging speeding. According to the citizen there are currently no traffic calming devices. Also, the citizen stated that previously existing crosswalks are no longer there. The implication here is that when the road was repaved the crosswalks were not re-stripped.

Comment: Examining the feasibility and practicality of a crosswalk at this location could be considered for the ATCS Traffic Calming Study.

Concern/Contribution #3: Suggestion for Origin-Destination Survey on Church Street, NE from East Street, NE to Lawyers Road, NW during the P.M. peak hour.

Summary: No elaboration.

Comment: Based on knowledge of the Town, this is a very valid concern. Church Street parallels Maple Avenue providing faster access to Lawyers Road, NW during P.M. peak hours.

(5) **Citizen:** 706 Spring Street

Concern/Contribution: Recommendations for Origin-Destination Survey locations and Traffic Count locations.

Summary: This citizen recommended the following locations for Origin-Destination Surveys:

- Park Street
- Cottage Street
- Marshall Road

This citizen recommended the following locations for Traffic Counts:

- Nutley Street, NW near elementary school
- Echols Street, SE
- Locust Street
- Glyndon Street
- NOT Old Courthouse Road

Citizen also recommended use of existing traffic counts.

Comment: All of these recommendations suggested by this citizen (and also a Town Council member) could be considered for the ATCS Traffic Calming Study. Recommended use of existing traffic counts is an excellent one because counts that are a couple years old could cost-effectively provide the evidence needed to warrant traffic calming devices.

(6) **Citizen:** Ross Drive

Concern/Contribution: Excessive speeds on Ross Drive, SW.

Summary: This citizen expressed concerns of excessive speeds on Ross Drive, SW from vehicles traveling to and from Yeonas Park.

Comment (KK): This is a valid concern, since average weekday traffic may be too low to warrant traffic calming devices but could be considered for the ATCS Traffic Calming Study. If counts were to be taken, they would have to be during Little League season, on a weekday evening.

(7) **Citizen:** Mary Ellen Larkins

Concern/Contribution: Vehicles do not stop at the stop sign at intersection of Church Street and Glyndon Street, NE.



Summary: This citizen expressed concern for vehicles not obeying the existing stop sign at the intersection of Church Street and Glyndon Street, NE. The citizen remarked that although it is still bad now with Beulah Road closed, the situation is even worse when Beulah Road is open; a DVD as provided as proof of the problem, which also showed speeding in the area.

Comment: This problem is not directly related to the ATCS Traffic Calming Study; law enforcement is recommended for this situation.

(8) **Citizen:** Denbow of the Transportation Safety Commission (TSC)

Concern/Contribution: There is not enough concentration on pedestrian safety.

Summary: This citizen/TSC member expressed concerns that this study should have a larger focus on pedestrian safety, in particular on Church Street from Park Street to Lawyers Road.

Comment: This is a valid concern. ATCS believes that although pedestrian safety is considered while conducting the study, it was not one of the core focus points outlined in the scope of this study nor was it requested by the Town. This would need to be addressed in future studies. Nonetheless, by implementing traffic calming devices within the Town, pedestrian safety would also improve in those areas. Additionally, the section highlighted, Church Street from Park Street to Lawyers Road was also highlighted in (4) Concern/Contribution #3.

General Concerns/Contributions:

For Origin-Destination Surveys, focus on the network as a whole. From there choose appropriate study areas.

Traffic count information from Beulah Road could be invalid after construction ends and the road re-opens.

The Park Street and Locust Street intersection was described as a new commercial area, but there was concern that there is a sidewalk on only one side.

Streets mentioned as good candidates for an all way stop signs:

- East & Church
- Church & Lawyers
- Locust & Park

Signal timing on Maple Avenue and Park Street was suggested in response to the very bad back-ups occurring on Park Street.



NEXT STEPS:

- (1) Make list of all roads of interest for
 - a. Traffic Counts
 - b. Origin-Destination Survey
- (2) Share list with Town and request feedback
- (3) Ask Town for any recent counts on that list of roads
- (4) Larry to ask for CAD files from Stephen Kenney of the Transportation Safety Commission to serve as the framework for GIS implementation.

Town staff instructed ATCS to count at ten locations identified in the March 8th kick-off meeting and June 26th TSC meeting. After the July 2nd Town Council Meeting, an eleventh location (Marshall Road) was counted by ATCS, one beyond the original scope of work without additional compensation. Table 1 lists the locations requested by Town staff.

Task 2: Collect Traffic Count Data at up to ten locations and conduct license plate surveys at up to three locations to quantify problem areas

Scope:

- a. Inventory VDOT & Town traffic counts on streets of interest
- b. Conduct traffic counts at up to ten locations identified by Town staff
- c. Inventory all traffic calming devices in Town
- d. Conduct license plate surveys at up to three locations to track vehicles cutting through a section of street/neighborhood
- e. Collect up to five traffic counts to determine the success of recently installed traffic calming devices
- f. Examine traffic accident data from the last three years, supplied by the Town Police Department

Tasks Completed:

a. Inventory VDOT & Town traffic counts on streets of interest

ATCS obtained all available recent traffic counts conducted by the Virginia Department of Transportation (VDOT). These data were used to validate the traffic counts conducted by ATCS. Refer to Appendix A to view the data. The VDOT counts do not provide speed data or volume by time of day.

b. Conduct traffic counts at up to ten locations identified by Town staff

Per direction from Town staff, outlined in Task 1 above, ATCS executed traffic counts at the locations shown in Table 2. The list was developed and prioritized by Town staff based on the intensity of the problem as stated by the Town officials and the citizens. Note that the day and time of the counts were approved by the Town's Public Work's staff. ATCS was concerned about the summer timeframe and reduction in demand, but Town staff approved the counts in an effort to expedite the study.



Table 2: Locations of Traffic Counts in Town of Vienna

Street Name	Location	Dates
Cottage Street, SW	Between Patrick Street, SW and James Drive, SW	4/25/07 – 4/26/07
Follin Lane, SE	Between Pine Street, SE and Hine Street, SE	4/25/07 – 4/26/07
Beulah Road, NE	Between Nelson Drive, NE and Sherwood Drive, NE	5/2/07 – 5/3/07
Lawyers Road, NW	Between Holmes Drive, NW and Windover Avenue, NW	5/9/07 – 5/10/07
Tapawingo Road #1, SW	Between Desale Street, SW and Lullaby Lane, S	6/6/07 – 6/7/07
Tapawingo Road #2, SW	Between Cottage Street, SW and Hillcrest Drive, SW	5/16/07 – 5/17/07
Nutley Street, NW	Between Malcolm Road, NW and Roland Street, SW	5/23/07 – 5/24/07
Park Street, SE	Between Adahi Road, SE and Harmony Drive, SE	7/19/07 – 7/21/07
Marshall Road, SW	Between Ware Street, SW and Mountfort Court, SW	7/19/07 – 7/21/07
Locust Street, SE	Between Park Street, SE and Glyndon Street, SE	7/26/07 – 7/28/07
Church Street, NE	Between Glyndon Street, NE and Beulah Road, NE	11/7/07

Data Collection / Technology

Jamar TRAX Flex HS equipment was used for the data collection. The equipment consists of a pneumatic belt and a counter. The belt is about 4 inches wide with two hollow rubber tubes running along its length. When a vehicle passes, the wheel presses the tubes and the air inside the tubes is pushed away. One end of the tubes is connected to the counter that contains a membrane and an electrical switch. The air pressure moves the membrane and engages the switch which records a vehicle. As the tubes are spaced at a fixed distance (4 inches), the speed of the vehicle is determined by recording the time taken for the vehicle to pass the first and the second tubes.

Counters were set up by ATCS staff such that speed and volume data are available for at least 2 typical weekdays on Tuesday, Wednesday or Thursday. Weekday traffic was typically collected for the entire week, with Monday and Friday data dismissed due to fluctuation generally found on those days. The average weekday traffic was derived from Tuesday–Thursday data. This represents accepted best practices in traffic counting/traffic engineering. Volume data is not collected when (1) school is out of session, (2) holidays, impact travel, (3) severe weather impacts travel, (4) accidents or construction (such as Beulah Road) change travel patterns, and (5) special events abnormally increase or decrease travel patterns. An exception was made by Town staff to collect speed and volume data on Park Street, Marshall Road, and Locust Street in the interest of expediting the study. Speed data is not impacted by summer travel, but volume is generally significantly lower, depending on the travel characteristics of the street. The origin–destination study, addressing cut-through traffic, addresses such volume issues. This study was conducted by ATCS the week of September 24, 2007. The study included Park Street and thus addressed volume issues on the street.



c. Inventory all traffic calming devices in Town

Two types of traffic calming devices exist: volume control devices and speed control devices. Below is a summary of the devices located in the Town.

Volume/cut-through traffic devices:

Devices to reduce cut-through traffic and/or high traffic volume on residential streets include access restrictions in the form of diverters or semi-diverters. Diverters can take the form of physical barriers or signed restrictions such as “do not enter” and “no left turn 7-9 A.M.”.

Existing access restrictions were obtained from the Town and a database has been created in a Geographic Information Systems (GIS) platform. This information may be used to understand and analyze the current traffic patterns and potential impacts on parallel streets. Table 3 contains the locations of the existing access restrictions, time of restriction, and type of restriction. Turn restrictions as marked in GIS can be viewed in Figure 1.

Table 3: Existing access restrictions in Town of Vienna

ID	Location	Restriction Time	Restriction Type
1	Follin Lane, SE	11 A.M.-1 P.M. and 4 P.M.-6 P.M.	No Left onto Pine Street
2	Follin Lane, SE	11 A.M.-1 P.M. and 4 P.M.-6 P.M.	No Left or Right onto Hine Street
3	Follin Lane, SE	11 A.M.-1 P.M. and 4 P.M.-6 P.M.	No Left or Right onto Echols Street
4	Follin Lane, SE	11 A.M.-1 P.M. and 4 P.M.-6 P.M.	No Left onto Orrin Street
5	Follin Lane, SE	11 A.M.-1 P.M. and 4 P.M.-6 P.M.	No Left onto Alma Street
6	Pine Street (West)	7 A.M.-9 A.M.	No Right onto Follin Lane
7	Hine Street (West)	7 A.M.-9 A.M.	No Right onto Follin Lane
8	Hine Street (East)	7 A.M.-9 A.M.	No Left onto Follin Lane
9	Echols Street (West)	7 A.M.-9 A.M.	No Right onto Follin Lane
10	Echols Street (East)	7 A.M.-9 A.M.	No Left onto Follin Lane
11	Echols Street, SE	7 A.M.-9 A.M.	Do Not Enter Delano Drive
12	Orrin Street, SE	7 A.M.-9 A.M.	No Right onto Follin Lane
13	Creek Crossing Road, NE	6.30 A.M.-9 A.M.	Do Not Enter Fairway Drive
14	Creek Crossing Road	6.30 A.M.-9 A.M.	Do Not Enter Woodnor Drive
15	Creek Crossing Road	6.30 A.M.-9 A.M.	Do Not Enter Westwood Drive
16	Creek Crossing Road	6.30 A.M.-9 A.M.	Do Not Enter Country Club Drive
18	Old Courthouse Road, NE	4 P.M.-6.30 P.M.	Do Not Enter Westwood Drive
19	Old Courthouse Road, NE	4 P.M.-6.30 P.M.	Do Not Enter Course Street
17	Old Courthouse Road, NE	4 P.M.-6.30 P.M.	Do Not Enter Country Club Drive
20	Old Courthouse Road, NE	4 P.M.-6.30 P.M.	Do Not Enter Fairway Drive



Speed Control Devices:

Speed control devices reduce speed in one of three ways on residential streets: (1) change in vertical height of roadway, (2) change in alignment of roadway, and (3) change in width of roadway. Examples are outlined below:

Vertical Change:

- Speed humps (either 12 feet or 22 feet in length)
- Raised intersections

Alignment Change:

- Traffic Circle
- Chicane

Width Change:

- Road narrowing / bump-out
- Median

See Section 4, Proposed Solutions, for more information on device types.

An inventory of existing speed control devices (speed humps) was provided by the Town and incorporated into GIS. Table 4 provides their specifications and locations. This information was also coded into the Town's GIS mapping system and is shown in Figure 1.



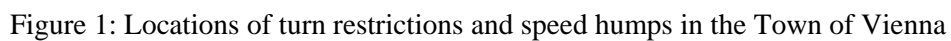
Table 4: Existing speed humps in Town of Vienna

Type	Address
Regular	212 Elm Street, SW
Modified	112 Oak Street, SW
Modified	106 Moore Avenue SW
Modified	102 Moore Avenue, SW
Regular	413 Center Street, N
Regular	322 Center Street, N
Regular	620 John Marshall Drive, NW
Regular	606 Upham Place, NW
Regular	613 Upham Place, NW
Regular	435 Orchard Street, NW
Raised	319 Nutley Street, NW
Regular	212 Walnut Lane, NW
Regular	224 Walnut Lane, NW
Regular	334 Ary Hill Avenue, NE
Regular	229 Church Street, NE
Regular	343 Church Street, NE
Regular	412 Glyndon Street, NE
Regular	319 Broadleaf Drive, NE
Regular	306 Broadleaf Drive, NE
Regular	505 Niblick Drive, SE
Regular	602 Niblick Drive, SE
Modified	402 Branch Road, SE
Modified	306 Branch Road, SE
Regular	112 Kingsley Road, SW
Regular	125 Kingsley Road, SW
Modified	205 Patrick Street, SW
Modified	107 Patrick Street, SW
Modified	108 Street Andrews Drive, NE
Modified	300 Block of Old Courthouse Road, NE
Modified	307 John Marshall Drive, NE
Modified	406 John Marshall Drive, NE
Modified	331 Park Street, NE
Raised	1007 Electric Avenue, SE
Modified	437 West Street, NW

Regular – 12 foot length

Modified – 22 foot length

Raised – 22 foot length raised crosswalk





d. Conduct license plate surveys at up to three locations to track vehicles cutting through a section of street/neighborhood

Per direction from staff on March 8, 2007, and after additional confirmation in September 2007, ATCS targeted the southeast and southwest quadrants to assess cut-through traffic traveling through Vienna residential streets from I-66 and points south/southeast to Tysons Corner and other destinations north/northwest.

Due to the size and complexity of the travel patterns in study area defined above, ATCS conducted a license plate survey at six locations (instead of the limit of three listed in the scope of work) to determine the exact percentages of traffic cutting through the Vienna residential communities in the southeast and southwest quadrants. Technicians were deployed to record the license plates at strategic locations where the Town staff and TSC expressed concerns. This information complements the traffic volume data collected in Task 2.

An origin–destination study process was employed to achieve two objectives: (1) identify trips traveling through, to, and from the study area; and (2) protect the privacy of the drivers in the vehicles traced by ATCS. The best (peak) time of day to collect data in the study area was determined after examining the traffic counts collected and processed in these quadrants. This analysis indicated that the survey should be conducted from 7 A.M. – 9 A.M. during the morning and from 4.30 P.M.–6.30 P.M. during the evening.

In the morning, vehicles cutting through the neighborhood to reach Tysons Corner from Nutley Street (Southwest), and Cedar Lane (Southeast) were captured. During the evening, vehicles going onto Nutley Street (Southwest) from Cedar Lane (Southeast) and Maple Avenue (Southeast) were recorded. The license plate number and time of day a vehicle passed the recording points were collected by ATCS. The results of each data collection point were compared to determine the travel patterns of the vehicles. Figure 2 shows the locations of the cut-through survey done in the evening in the Town of Vienna.

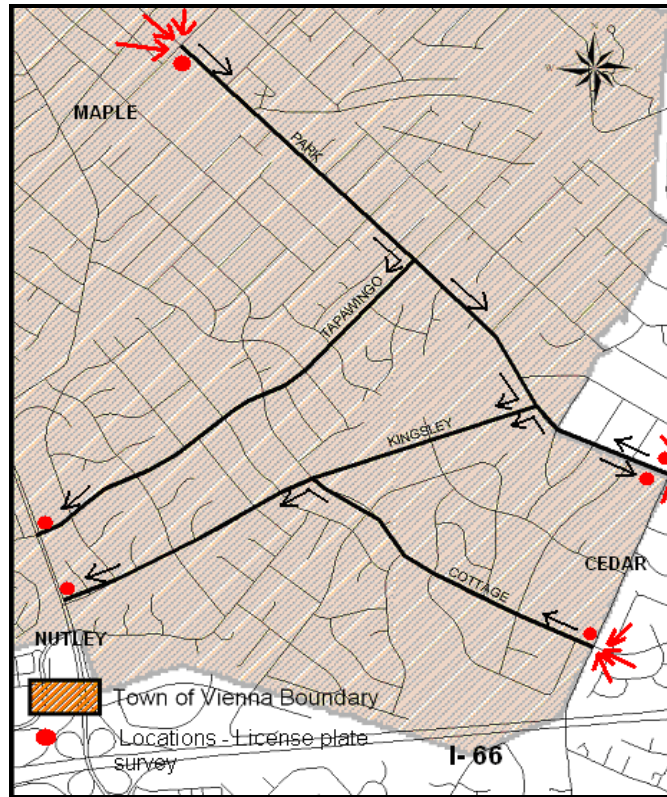


Figure 2: Locations of evening license plate surveys.

The license plate numbers at each location were entered into a cut-through traffic analysis model developed by ATCS to find the traffic flow pattern and cut-through percentages. The results of the survey are presented in the next section. The morning and evening survey locations and directions are shown in Table 5. Consistent with the Town's traffic calming guidelines, this method is applied only to residential and collector streets experiencing cut-through traffic.

Table 5: Cut-through survey locations and directions

No.	Location	Traffic flow direction
A.M. Peak		
1	Park Street, SE and Cedar Lane, SE	All Vehicles coming ONTO PARK from Cedar Lane
2	Maple Avenue, E and Center Street, S	All Vehicles getting OFF CENTER onto Maple Avenue (on the side of Locust)
3	Maple Avenue, E and Park Street, SE	All Vehicles getting OFF PARK Street (on the side of Locust)
4	Nutley Street, SW and Kingsley Road, SW	All Vehicles coming ONTO Kingsley Road from Nutley Street
5	Nutley Street, SW and Tapawingo Road, SW	All Vehicles coming ONTO Tapawingo Road from Nutley Street
6	Cottage Street, SW and Cedar Lane, S	All Vehicles coming ONTO COTTAGE Street from Cedar Lane
P.M. Peak		
1	Park Street, SE and Cedar Lane, SE	All Vehicles coming ONTO PARK Street from Cedar Lane
2	Park Street, SE and Cedar Lane, SE	All Vehicles getting OFF PARK Street onto Cedar Lane
3	Maple Avenue, E and Park Street, SE	All Vehicles coming ONTO PARK Street (on the side of Locust)
4	Nutley Street, SW and Kingsley Road, SW	All Vehicles going TOWARDS Nutley from Kingsley Road
5	Nutley Street, SW and Tapawingo Road, SW	All Vehicles going TOWARDS Nutley Street from Tapawingo Road
6	Cottage Street, SW and Cedar Lane, S	All Vehicles coming ONTO COTTAGE Street from Cedar Lane



e. Collect up to five traffic counts to determine the success of recently installed traffic calming devices

The Town Council asked ATCS to assess the success of recently installed traffic calming devices in reducing traffic volume and speed. The scope of work proposes that ATCS evaluate up to five locations by conducting “before and after studies.” This study evaluates (1) data collected prior to the installation of the traffic calming device to quantify the magnitude of the problem (provided by the Town staff); (2) the type of device and thus the anticipated result (as outlined in Task c above: volume/cut-through control traffic devices verses speed control devices); and (3) the effectiveness of the device by conducting a traffic count to quantify volume and speed near the device (usually done at least six months after the device is installed to allow for an adjustment period). Step 3 results are compared to the Town’s traffic calming guidelines to determine whether the street operates within volume and speed thresholds acceptable to the Town.

Town staff identified five traffic calming devices for ATCS to study, as shown in Table 6. Town staff was able to produce “before” traffic volume and speed information for two of the five locations. ATCS collected five speed and volume counts on 300-400 Center Street, N, 200-300 Church Street, NE, 100 Kingsley Road, SW, 100-200 Patrick Street, SW, and 100 Saint Andrews Drive, NE to assess the “after” conditions.

Table 6: Results of “Before-After Study for Existing Speed Humps

Location	Before			After			85th Percentile Speed Reduction
	Average Speed	85th Percentile Speed	Maximum Speed	Average Speed	85th Percentile Speed	Maximum Speed	
300-400 Center Street, N	-	-	-	23	28	47	
200-300 Church Street, NE	-	-	-	14	22	36	
100 Kingsley Road, SW	23.5	29.99	-	21	26	39	3.99
100-200 Patrick Street, SW	25	32.5	53	20	25	33	7.5
100 Saint Andrews Dive, NE	29	37	51	19	24	35	13

Task 3: Evaluate traffic count and license plate survey data, compare to Town traffic calming guidelines

Scope:

- a. Process ten counts for key performance measures:
 - Peak hour volume
 - Daily volume
 - 85th percentile speed
 - Average speed
 - Maximum speed
 - Worst speeding hours during the day per location
- b. Quantify cut-through traffic problems in study area (southeast and southwest quadrants)
- c. Assess effectiveness of existing traffic calming devices



Task completed:

a. Process ten (eleven) counts for key performance measures

ATCS collected and processed eleven counts for key traffic calming performance measures, which included:

- Peak hour volume
- Daily volume
- 85th percentile speed (average daily)
- Average speed
- Maximum speed
- Worst speeding hours during the day (for enforcement)

Upon completing the traffic counts at the eleven priority locations identified by Town staff, ATCS processed the information so it could be compared to the VDOT and Town's traffic calming guidelines for speeding and volume problems.

Comparison to Town and Virginia Department of Transportation (VDOT) Criteria

The information collected was compared to the criteria listed in *The Citizen's Guide to Traffic Calming in Vienna* and *The Traffic Calming Guide for Local Residential Streets* by VDOT. Street traffic attributes meeting the following thresholds for speed and volume were considered for traffic calming. Thresholds used by the Town of Vienna are considered over VDOT's in this study.

	Town of Vienna	VDOT
Speed	85 th percentile speeds at least 5 mph above speed limit (<i>suggested</i>)	Streets with average speed exceeding the 25 mph speed limit by 5 mph or more
Volume	Streets with average weekday daily volume exceeding 2,000 (<i>suggested</i>)	Streets with average weekday daily volume exceeding 4,000

Additional Requirements:

VDOT

The criteria listed in *The Traffic Calming Guide for Local Residential Streets* by VDOT, includes the following qualifiers:

- All local streets that provide direct access to abutting residences with a posted speed limit of 25 mph
- Residential collector streets with:
 - 25 mph posted speed limit
 - Two-lane roadway
 - No primary access to commercial and industrial sites
 - Minimum of 12 dwellings fronting the street per 1000 feet of roadway on both sides

Town of Vienna

Table 7 presents the street classification and eligibility for traffic calming based on the road classification information obtained from the *Comprehensive Plan* of the Town of Vienna. Based on these guidelines, five streets provided by Town staff for analysis (Cottage Street SW, Follin Lane, SE, Beulah Road NE, Lawyers Road NW, and Park Street SE) are ineligible for traffic calming as they are classified as minor arterial streets.



Table 7: Street Eligibility for Traffic Calming in Town of Vienna

Street Name	Roadway Classification	Eligibility
Cottage Street, SW	Minor Arterial Street	No
Follin Lane, SE	Minor Arterial Street	No
Beulah Road, NE	Minor Arterial Street	No
Lawyers Road, NW	Minor Arterial Street	No
Tapawingo Road, SW #1	Collector Street	Yes
Tapawingo Road, SW #2	Collector Street	Yes
Nutley Street, NW	Collector Street	Yes
Park Street, SE	Minor Arterial Street	No
Marshall Road, SW	Local Street	Yes
Locust Street, SE	Collector Street	Yes
Church Street NE	Collector Street	Yes

Findings

In the Town of Vienna, none of the eleven streets qualify for traffic calming for speed, as the 85th percentile speeds fall below 30 mph. However, seven of the eleven streets studied possess volumes over the Town's criteria of 2,000. Church Street NE, Follin Lane SE, Tapawingo Road SW, and Locust Street, SE have daily volumes over 4,000, and thus qualify for traffic calming volume reductions per the VDOT threshold. Table 8 shows the eleven priority locations in the Town of Vienna for traffic calming with speed and volume results. Table 8 displays the results of the traffic volume comparison for the Town and VDOT criteria.

Table 8: Results of Speed and Volume Counts in the Town of Vienna

	Street Name	AADWT Daily Volume	Peak Hour Volume	85 th Percentile Speed	Average Speed	Max. Speed	Speeding Hours
1	Cottage Street, SW	6561	774	30	25	41	NA
2	Follin Lane, SE	6041	802	29	25	42	NA
3	Beulah Road, NE	12437	965	31	26	54	NA
4	Lawyers Road, NW	14951	1134	29	21	42	NA
5	Tapawingo Road, #1 SW	3401	399	29	18	41	NA
6	Tapawingo Road, #2 SW	5215	536	27	22	41	NA
7	Nutley Street, NW	3134	213	27	22	34	8 A.M. – 10 A.M. and 4 P.M. – 6 P.M.
8	Park Street, SE	9841	827	25	20	39	6 A.M. – 8 A.M.
9	Marshall Road, SW	2596	301	27	22	38	3 P.M. – 6 P.M.
10	Locust Street, SE	5718	595	24	21	37	4.30 P.M. – 7.30 P.M.
11	Church Street, NE	7049	783	22	14	36	9 A.M. – 10 A.M.

Town of Vienna: Department of Public Works
Traffic Calming Study



Table 9: Locations Eligible for Traffic Calming in Town of Vienna
 (Red indicates eligibility by VDOT criteria, yellow by Town criteria)

	Street Name	Location	AWDT (Both Directions)	% Peak Traffic	Speed 85 th Percentile	Remarks
1	Church Street, NE	Between Glyndon Street, SE and Beulah Road, NE	7049	11%	22	Excessive Volume as per Town's and VDOT's guidelines
2	Follin Lane, SE	Between Pine Street, SE and Hine Street, SE	6041	13.5%	29	Excessive Volume as per Town's and VDOT's guidelines
3	Locust Street, SE	Between Park Street, SE and Glyndon St, SE	5718	10.5%	24	Excessive Volume as per Town's and VDOT's guidelines
4	Tapawingo Road, #2 SW	Between Cottage Street, SW and Hillcrest Drive, SW	5215	10.5%	27	Excessive Volume as per Town's and VDOT's guidelines
5	Tapawingo Road, #1 SW	Between Desale Street, SW and Lullaby Lane, S	3401	12%	29	Excessive Volume as per Town's guidelines
6	Nutley Street, NW	Between Malcolm Road, NW and Roland Street, SW	3134	9.5%	27	Excessive Volume as per Town's guidelines
7	Marshall Road, SW	Between Ware Street, SW and Mountfort Court, SW	2596	11.5%	27	Excessive Volume as per Town's guidelines

Refer to Appendix B for the distribution of volume at various times of the day on streets with average daily weekday volume exceeding 4,000.

b. Quantify cut-through traffic problems in study area (southeast and southwest quadrants)

As outlined in Task 2d., ATCS quantified the volume and percentage of cut-through traffic on Vienna streets. ATCS understands the cut-through traffic should ideally constitute not more than 40% of the total traffic according to *The Citizen's Guide to Traffic Calming in Vienna*.

None of the local and collector streets in the Town of Vienna have cut-through traffic of more than the threshold value of 40%. A maximum cut-through of 29% was observed from Cedar Lane, S to Nutley Street via Park Street and Kingsley Road. The results of the cut-through study are presented in Table 10.

Town of Vienna: Department of Public Works
Traffic Calming Study



Table 10: Results of the Cut-Through Traffic Study in Town of Vienna

No.	From Location	To Location	Percentage
A.M. Peak			
1	Tapawingo Road, SW – Nutley Street, SW	Maple Avenue, E – Park Street, SE	14
2	Tapawingo Road, SW – Nutley Street, SW	Maple Avenue, E – Center Street, S	6
3	Kingsley Road, SW – Nutley Street, SW	Maple Avenue, E – Park Street, SE	2
4	Kingsley Road, SW – Nutley Street, SW	Maple Avenue, E – Center Street, S	1
5	Cottage Street, SW – Cedar Lane, SE	Maple Avenue, E – Park Street, SE	1
6	Cottage Street, SW – Cedar Lane, SE	Maple Avenue, E – Center Street, S	11
7	Park Street, SE – Cedar Lane, SE	Maple Avenue, E – Park Street, SE	20
8	Park Street, SE – Cedar Lane, SE	Maple Avenue, E – Center Street, S	6
P.M. Peak			
1	Maple Avenue, E – Park Street, SE	Tapawingo Road, SW – Nutley Street, SW	10
2	Maple Avenue, E – Park Street, SE	Kingsley Road, SW – Nutley Street, SW	6
3	Maple Avenue, E – Park Street, SE	Park Street, SE – Cedar Lane, SE (OUT)	17
4	Park Street, SE – Cedar Lane, SE (IN)	Tapawingo Road, SW – Nutley Street, SW	5
5	Park Street, SE – Cedar Lane, SE (IN)	Kingsley Road, SW – Nutley Street, SW	29
6	Park Street, SE – Cedar Lane, SE (IN)	Park Street, SE – Cedar Lane, SE (OUT)	9
7	Cottage Street, SW – Cedar Lane, SE	Tapawingo Road, SW – Nutley Street, SW	2
8	Cottage Street, SW – Cedar Lane, SE	Kingsley Road, SW – Nutley Street, SW	4
9	Cottage Street, SW – Cedar Lane, SE	Park Street, SE – Cedar Lane, SE (OUT)	0

c. Assess the effectiveness of existing traffic calming devices

Town staff identified five traffic calming devices for ATCS to study, as shown in Table 5 and 11. Town staff was able to produce “before” traffic volume and speed information for Center Street and Church Street - two of the five locations. Commissioner Kenney supplied data for Kingsley Road, as shown below. ATCS collected five speed and volume counts on 300-400 Center Street N, 200-300 Church Street, NE, 100 Kingsley Road, SW, 100-200 Patrick Street, SW, and 100 Saint Andrews Drive, NE to assess the “after” conditions.

Findings

The 85th percentile speeds at all the locations are all within the Town’s acceptable speed threshold of 30 mph. Center Street, N recorded the highest 85th percentile and maximum speed, at 28 mph and 47 mph respectively. At the two locations where Town staff provided “before” information, the speed humps seemed to be effective in reducing the speeds. For example, 85th percentile speeds on Patrick Street, SW and Saint Andrews Drive, NE were reduced from 32.5 mph to 25 mph and 37 mph to 24 mph, respectively, after the installation. Refer to Table 11 for average, 85th percentile, and maximum speeds at five existing speed humps.



Table 11: Results of Before - After Study for Existing Speed Humps

Location	Before			After			85 th Percentile Speed Reduction
	Average Speed	85 th Percentile Speed	Maximum Speed	Average Speed	85 th Percentile Speed	Maximum Speed	
300-400 Center Street, N	-	-	-	23	28	47	
200-300 Church Street, NE	-	-	-	14	22	36	
100 Kingsley Road, SW	27	29.9	-	21	26	39	3.9
100-200 Patrick Street SW	25	32.5	53	20	25	33	7.5
100 Saint Andrews Drive, NE	29	37	51	19	24	35	13



Task 4 & 5: Proposed Solutions / Cost Estimates

Speed Reduction Recommendations

The traffic counts collected by ATCS at the priority locations identified by Town staff show no locations qualifying for speed reduction measures as defined by the Town's standards. Speeds on the local streets in Vienna are within the VDOT and Town guidelines for traffic calming as average and 85th percentile speeds on all the streets are below the 30 mph threshold.

With regard to assessing the impact of recently installed traffic calming devices, ATCS found that the speed humps have been quite effective in reducing speed at the five locations identified by Town staff. All locations operate within Town and VDOT speed thresholds. Town staff identified five recently installed traffic calming devices, but provided information for only two locations. With Commissioner Kenney's data, ATCS compared the "before/after" information for three locations and compared the ATCS traffic count speed data to Town acceptable levels at the remaining locations. The results are summarized in Table 11.

Based on the testimony on June 26, 2007, and February 26, 2008, ATCS offers the following additional speed-related recommendations. First, Marshall Road, near Nutley Street, experiences cut-through traffic and residents have complained about the speed of the vehicles. Although the road does not qualify for an engineering solution to speeding problem, targeted enforcement by time-of-day will help reduce speeding during the peak travel periods. This road is also addressed in the volume reduction section, below. The cost of such service would be in-kind services by the Police Department, or \$0.00.

Second, according to testimony from residents, Ross Drive experiences speeding problems when activities are underway at Yeonas Park. Due to the nature of the problem and roadway design, ATCS recommends select police enforcement and informative signs at the park to target that group of drivers. The cost of such service would be in-kind services by the Police Department, or \$0.00, and approximately \$1,000 for signs in the vicinity of the park.

Third, East Street NE between Maple Avenue and Ayr Hill Avenue was cited by residents as a speeding concern. Although ATCS was not asked to collect data at this location, recent traffic counts supplied by Commissioner Kenney shows a speeding problem in the 200 block of the roadway, with an average speed of 28 mph and an 85th percentile speed of 33 mph. Commissioners, residents, and staff have expressed concern for pedestrian safety at Church Street and East Street as well.

ATCS conducted two field visits to assess the traffic and pedestrian safety issues, one with Town staff and the second with a TSC Commissioner and residents of Church Street. One of these visits was done per request of Town staff, although not included in the work scope. The second was suggested by ATCS per discussion with Church Street residents.

The intersection possesses challenges for pedestrians due to the following factors: (1) East Street possesses a horizontal curve that limits sight distance (fortunately Church intersects on the outside of the curve which is better sight distance than inside the curve); (2) the curb turning radii appear to be approximately 50 feet, allowing more than sufficient space for truck movements, but adding 5-10 feet for pedestrian to cross each leg; and (3) curb ramps appear to be aligned incorrectly with the stop bar on the Church Street leg.

ATCS traffic engineering recommendations for this location include the addition of crosswalks, a pedestrian refuge/median on the Church Street leg and potentially one leg on East Street



(\$10,000+, depending on size and drainage issues), and an optional pedestrian beacon for traffic traveling southbound on East Street to alert drivers of pedestrians attempting to cross the northern leg of the intersection (\$10,000-\$20,000 depending on type of beacon and power source). Each of these improvements must be lined up to minimize the distance pedestrians must cross across the intersection, protect pedestrians while crossing the street, and slow traffic.

With regard to traffic calming, speed will be reduced for turning vehicles when the turning radius is reduced and vehicles on East Street will slow down at the refuge/median due to the narrowing effect.

Fourth, Church Street acts as a portal to the Town's business district as well as carries cut-through traffic destined to Tyson Corner. Church Street, NE has an average speed of only 14 mph, indicating that the speed hump works effectively and should be used on other sections of the roadway. The additional humps should be spaced approximately 400 feet apart to maximize speed reduction on this heavily traveled residential street. Speed humps cost between \$5,000 to 18,000, depending on size, coloring, and texture.

Other general recommendations include:

- Establishing Residential Districts for speeding areas of concern, adding \$200 fine to existing speeding fines.
- Creating standard operating procedures that quantify speed and volume problems prior to installation of traffic calming devices.
- Following up with data collection to quantify speed and volume of traffic at least six months after the device is installed.
- Establishing a proactive traffic monitoring program either through the Police or Public Works Department to monitor speeding on high priority streets, while using the same resources to respond to resident concerns on the same issue.
- Developing an education and enforcement program for speeding to address resident concerns on streets that do not meet Town or VDOT thresholds and thus not warrant engineering solutions for speeding but contain isolated problems in which these strategies will eliminate speeding.
- Establishing a traffic calming CIP project that funds speeding devices for priority locations in the Town.
- Experimenting with speed control devices other than speed humps (12 or 22 foot) to improve pedestrian safety and slow speeds. Examples include medians with pedestrian refuges and bump-outs (narrowing from the curb inward).
- For streets with speed problems that either (a) ineligible for physical speed control devices, or (b) have constructability constraints, apply permanently mounted speed sensor signs to reduce speeds. Residential collector streets would be the best use of this speed reduction tool.

Volume Reduction Recommendations

Due to the land use placement and roadway network configuration, several streets qualify for traffic calming based on Town and VDOT volume thresholds. The residential development in Vienna surrounding the Maple Avenue corridor and proximity to Tysons Corner promotes travelers to seek paths through the residential communities to these activity centers. Further, the proximity of I-66 and lack of arterial streets, combined with high congestion levels on the few arterials in the Town, make travel on residential streets a significant time savings for vehicles with destinations in these commercial areas.

Based on the problem outlined above, ATCS's data collection and evaluation tasks found the following volume and cut-through traffic problems in the Town of Vienna.



First, local streets eligible for volume reduction measures based on VDOT's thresholds are Church Street, NE/NW, Tapawingo Road, SE, and Locust Street, SE. The daily volume threshold is 4,000 based on VDOT's traffic calming guide.

Second, streets eligible for volume reduction measures based on Town's thresholds are Tapawingo Road, SW, Nutley Street, NW, Marshall Road, SW, Locust Street, SE, and Church Street, NE. The volume threshold is 2,000 based on *The Citizen's Guide to Traffic Calming in Vienna*.

Third, typical volume control measures cannot be used on Church Street (7,000 vehicles per day) due to the connectivity the residential portion of the street has with the business district. Although the road is designated a collector street, it is quite narrow and possesses minimal pedestrian amenities. However, the speed humps proposed in the volume recommendations will slow and deter traffic.

Fourth, ATCS recommends that the Town consider restricting turns onto Marshall during peaks to eliminate cut-through traffic. Marshall is the only local street in study.

Fifth, ATCS recommends that the Town carefully evaluate the application of volume reduction remedies on Cottage Street, Follin Lane, Beulah Road, Lawyers Road, and Park Street due to the fact that each is designated a minor arterial street—normally facilities designated in jurisdiction's comprehensive plans for carrying high volumes of traffic.

Sixth, feedback from the public testimony was mixed as to whether collector streets such as Tapawingo Road, Nutley Street, Locust Street, and Church Street should carry high volumes of traffic. ATCS addressed Church Street in both the volume and speed recommendations, but feels that the remaining streets should be discussed by the TSC. ATCS is concerned that such volume control devices as turn restrictions will simply shift the problem to parallel streets. However, the Town should consider turn restrictions by time of day to address cut-through traffic concerns.

Seventh, volume (cut-through) on neighborhood streets Park Street SE and Kingsley Road SE/SW is high (30%), but does not qualify based on the Town's guide. *The Citizen's Guide to Traffic Calming in Vienna* states 40% or more as a threshold for cut-through traffic. However, the Town should realize that 40 vehicles out of 100 cause little or no impact compared to 2000 vehicles out of 5000. Percentage thresholds apply well to low volume streets. ATCS recommends that volume thresholds be specified for each category of streets with higher volumes. The Town's *Guide* needs to be revised to reflect all the possibilities.

Eighth, the volume thresholds in *The Citizen's Guide to Traffic Calming in Vienna* need to be revised to accommodate factors like roadway function, nature, size and location within the community.

General Recommendations:

- Continue to use speed devices for speeding and volume control devices for cut-through traffic locations.
- Use the "3 E's" of education, engineering, and enforcement to address various levels of speed and volume problems (see *The Citizen's Guide to Traffic Calming in Vienna*).





Traffic Calming Strategies for the Town to Consider

(Source: TrafficCalming.org)

SPEED MITIGATIONS

Vertical Deflection Devices

- **Speed Humps** (road humps, or undulations): Speed humps are rounded raised areas placed across the roadway. They are generally 10 to 14 feet long (in the direction of travel), making them distinct from the shorter "speed bumps" found in many parking lots, and are 3 to 4 inches high. The profile of a speed hump can be circular, parabolic, or sinusoidal. They are often tapered as they reach the curb on each end to allow unimpeded drainage. Speed humps are good for locations where very low speeds are desired and reasonable, and noise and fumes are not a major concern.
- **Speed Tables** (trapezoidal humps, speed platforms): Speed tables are flat-topped speed humps often constructed with brick or other textured materials on the flat section. Speed tables are typically long enough for the entire wheelbase of a passenger car to rest on the flat section. Their long flat fields give speed tables higher design speeds than speed humps. The brick or other textured materials improve the appearance of speed tables, draw attention to them, and may enhance safety and speed-reduction.
- **Raised Intersections** (raised junctions, intersection humps, plateaus): Raised intersections are flat raised areas covering an entire intersection, with ramps on all approaches and often with brick or other textured materials on the flat section. They usually rise to the level of the sidewalk, or slightly below to provide a "lip" that is detectable by the visually impaired. By modifying the level of the intersection, the crosswalks are more readily perceived by motorists to be "pedestrian territory". Raised intersections are good for intersections with substantial pedestrian activity, and areas where other traffic calming measures would be unacceptable because they take away scarce parking spaces.
- **Raised Crosswalks** (raised crossing, sidewalk extensions): Raised crosswalks are Speed Tables outfitted with crosswalk markings and signage to channelize pedestrian crossings, providing pedestrians with a level street crossing. Also, by raising the level of the crossing, pedestrians are more visible to approaching motorists. Raised crosswalks are good for locations where pedestrian crossings occur at haphazard locations and vehicle speeds are excessive.
- **Textured Pavements** (cobblestone, brick pavement, stamped pavement): Textured and colored pavement includes the use of stamped pavement or alternate paving materials to create an uneven surface for vehicles to traverse. They may be used to emphasize either an entire intersection or a pedestrian crossing, and are sometimes used along entire street blocks. Textured pavements are good for "main street" areas where there is substantial pedestrian activity and noise is not a major concern.



Horizontal Deflection Devices

- **Traffic Circles** (rotaries, intersection islands): Traffic circles are raised islands, placed in intersections, around which traffic circulates. They are good for calming intersections, especially within neighborhoods, where large vehicle traffic is not a major concern but speeds, volumes, and safety are problems.
- **Roundabouts** (traffic circles, rotaries, intersection islands): Traffic circles are raised islands, placed in intersections, around which traffic circulates. They are good for calming intersections, especially within neighborhoods, where large vehicle traffic is not a major concern but speeds, volumes, and safety are problems.
- **Chicanes** (deviations, serpentines, reversing curves, twists): Chicanes are curb extensions that alternate from one side of the street to the other, forming S-shaped curves. Chicanes can also be created by alternating on street parking, either diagonal or parallel, between one side of the street and the other. Each parking bay can be created either by restriping the roadway or by installing raised, landscaping islands at the ends of each parking bay. Good for locations where speeds are a problem but noise associated with speed humps and related measures would be unacceptable.
- **Realigned Intersections** (modified intersections): Realigned intersections are changes in alignment that convert T-intersections with straight approaches into curving streets that meet at right angles. A former "straight-through" movement along the top of the T becomes a turning movement. While not commonly used, they are one of the few traffic calming measures for T-intersections, because the straight top of the T makes deflection difficult to achieve, as needed for traffic circles. They are good for T-intersections.

Horizontal Narrowing

- **Neckdowns** (nubs, bulbouts, knuckles, intersection narrowings, corner bulges, safe crosses): Neckdowns are curb extensions at intersections that reduce the roadway width from curb to curb. They "pedestrianize" intersections by shortening crossing distances for pedestrians and drawing attention to pedestrians via raised peninsulas. They also tighten the curb radii at the corners, reducing the speeds of turning vehicles. They are good for intersections with substantial pedestrian activity and areas where vertical traffic calming measures would be unacceptable because of noise considerations.
- **Center Island Narrowings** (midblock medians, median slowdowns, median chokers): A center island narrowing is a raised island located along the centerline of a street that narrows the travel lanes at that location. Center island narrowings are often landscaped to provide a visual amenity. Placed at the entrance to a neighborhood, and often combined with textured pavement, they are often called "gateway islands." Fitted with a gap to allow pedestrians to walk through at a crosswalk, they are often called "pedestrian refuges." Center Island Narrowings are good for entrances to residential areas and wide streets where pedestrians need to cross.
- **Chokers** (pinch points, midblock narrowings, midblock yield points, constrictions): Chokers are curb extensions at midblock locations that narrow a street by widening the sidewalk or planting strip. If marked as crosswalks, they are also known as safe crosses. Two-lane chokers leave the street cross section with two lanes that are narrower than the normal cross section. One-lane chokers narrow the width to allow travel in only one direction at a time,



operating similarly to one-lane bridges. They are good for areas with substantial speed problems and no on-street parking shortage.

Town of Vienna: Department of Public Works
Traffic Calming Study



Appendix A: Recent Traffic Counts

Virginia Department of Transportation Annual Average Daily Traffic Volume Estimates By Section of Route Town of Vienna												
Route Alias	Route Number	Route Label	AADT	% 2 and 4 Tire Vehicles	% Buses	% Single Unit Trucks 2 Axle	% Single Unit Trucks 3+ Axle	% Combination Trucks 1 Trailer	% Combination Trucks 2+ Trailer	K Factor	AAW DT	Data Date
Maple Avenue, W	00123	VA 123	38000	98%	0%	0%	1%	0%	0%	0.0809	40000	2005
Maple Avenue, E	00123	VA 123	41000	98%	0%	0%	1%	0%	0%	0.0783	43000	2005
Maple Avenue, E	00123	VA 123	44000	98%	0%	0%	1%	0%	0%	0.0838	46000	2005
Nutley Street, SW	00243	VA 243	39000	98%	0%	1%	0%	0%	0%	0.0845	42000	2005
Electric Avenue, SE	00001	153-1	8300	99%	0%	0%	0%	0%	0%	0.1065	9100	2005
Echols Street, SE	00002	153-2	3900	99%	0%	0%	0%	1%	0%	0.1128	4200	2005
Locust Street, SW	00003	153-3	5000	99%	1%	1%	0%	0%	0%	0.1012	5500	2005
Malcom Road, NW	06638	153-6638	5800	98%	1%	1%	0%	0%	0%	0.1162	6400	2005
Tapawingo Road, SW	06642	153-6642	3800	98%	0%	1%	1%	1%	0%	0.1068	4200	2005
Nutley Street, NW	06643	153-6643	5400	99%	0%	0%	0%	0%	0%	0.1015	5900	2005
Courthouse Road, SW	06648	153-6648	7900	99%	0%	0%	0%	0%	0%	0.0960	8600	2005
Lawyers Road, NW	06648	153-6648	13000	98%	1%	1%	0%	0%	0%	0.0912	14000	2005
Old Court House Road, NE	06668	153-6668	9000	99%	1%	0%	0%	0%	0%	0.1130	9800	2005
Beulah Road, NE	06669	153-6669	11000	99%	0%	1%	0%	0%	0%	0.0868	12000	2005
Park Street, SE	06676	153-6676	10000	98%	0%	1%	0%	0%	0%	0.0844	11000	2005
Cottage Street, SW	06925	153-6925	4400	98%	1%	1%	0%	0%	0%	0.0994	4800	2005
Follin Lane, SE	06927	153-6927	7400	99%	0%	1%	0%	0%	0%	0.0928	8000	2005
Church Street, NW	06933	153-6933	6800	100%	0%	0%	0%	0%	0%	0.1005	7500	2005
Branch Road, SE	06934	153-6934	4100	99%	0%	0%	0%	0%	0%	0.1076	4500	2005
Nutley Street, NW	06643	153-6643	4500	99%	0%	0%	0%	0%	0%	0.1013	4900	2005
Creek Crossing Road, NE	06673	153-6673	1500	99%	0%	0%	0%	0%	0%	0.1253	1600	2005
Locust Street, SE	06935	153-6935	6100	99%	0%	0%	0%	0%	0%	0.1099	6600	2005
Adahi Road, SE	00000	153-0	1100							0.0808	1200	2005
Center Street, S	00000	153-0	4900							0.1338	5400	2005
Highland Street, NW	00000	153-0	150							0.1054	170	2005
Westwood Drive, NE	00000	153-0	460							0.0931	500	2005
Yeonas Drive, SW	00000	153-0	640							0.1047	700	2005



Appendix B: Volume Distribution

Figure B-1: Volume versus Time of Day – Tapawingo Road, SW

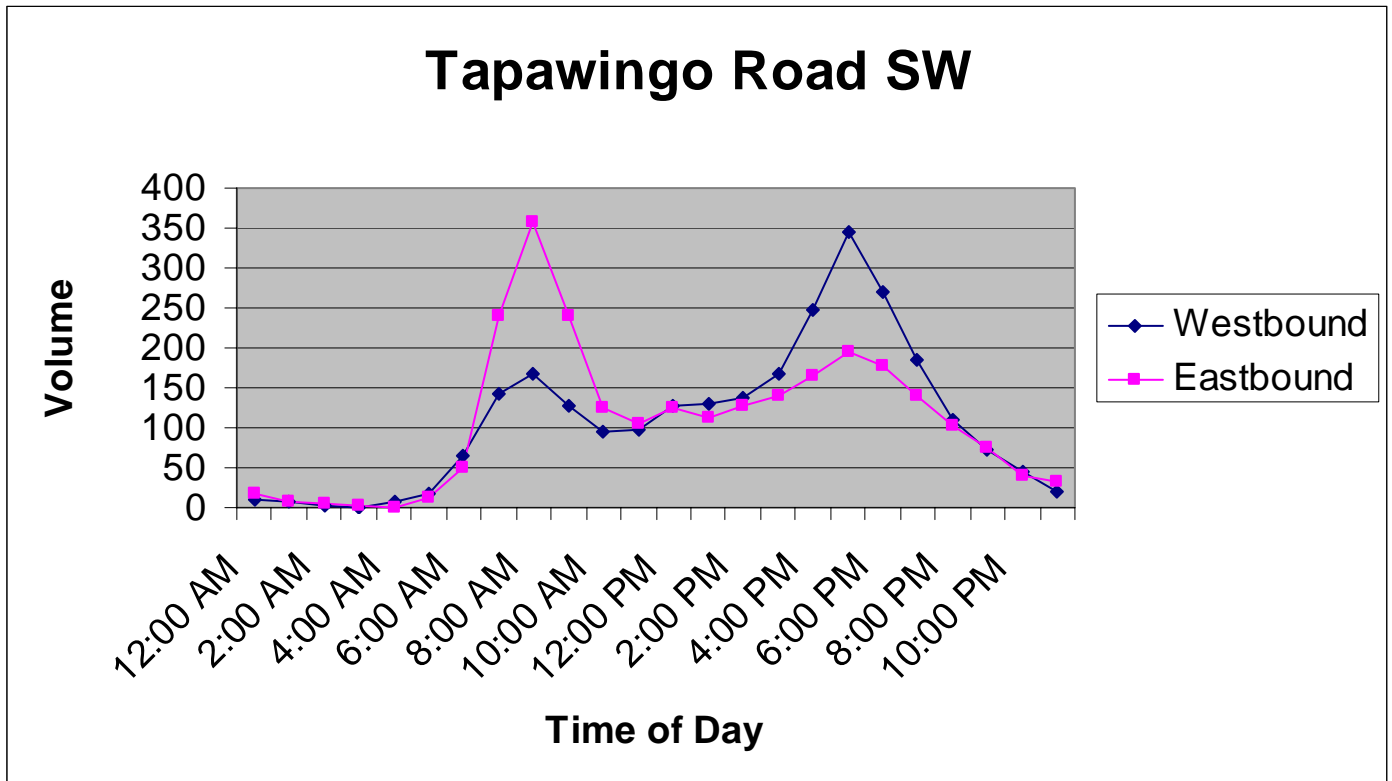




Figure B-2: Volume versus Time of Day – Locust Street, SE

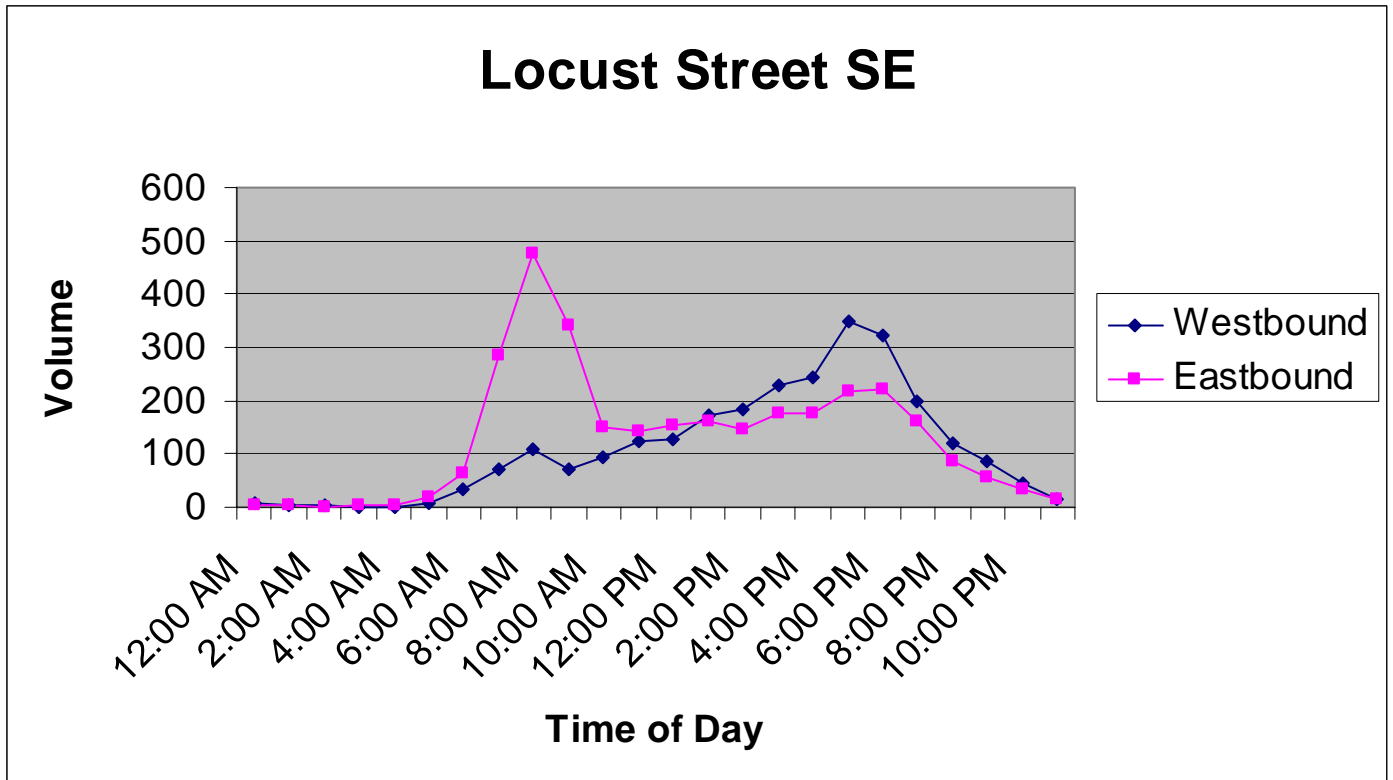




Table B-3: Volume versus Time of Day – Follin Lane, SE

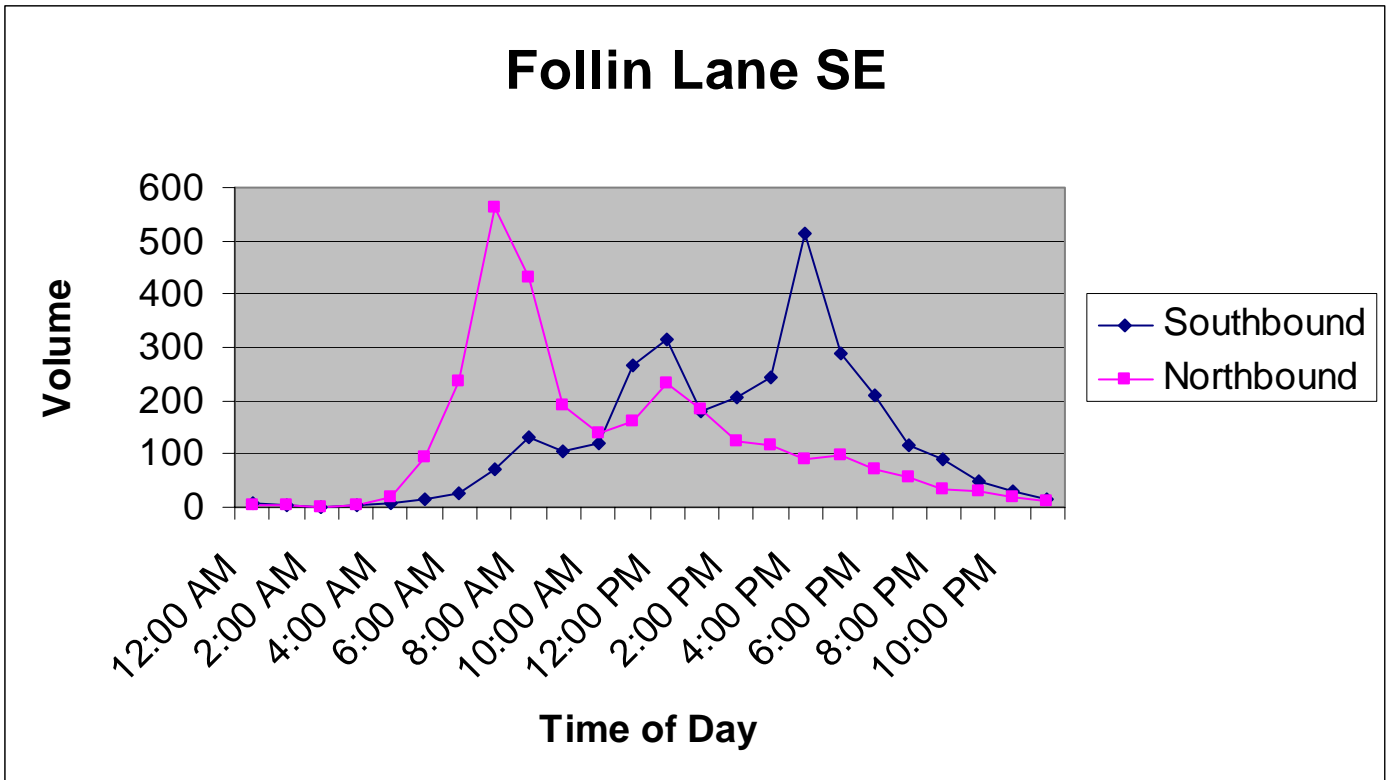
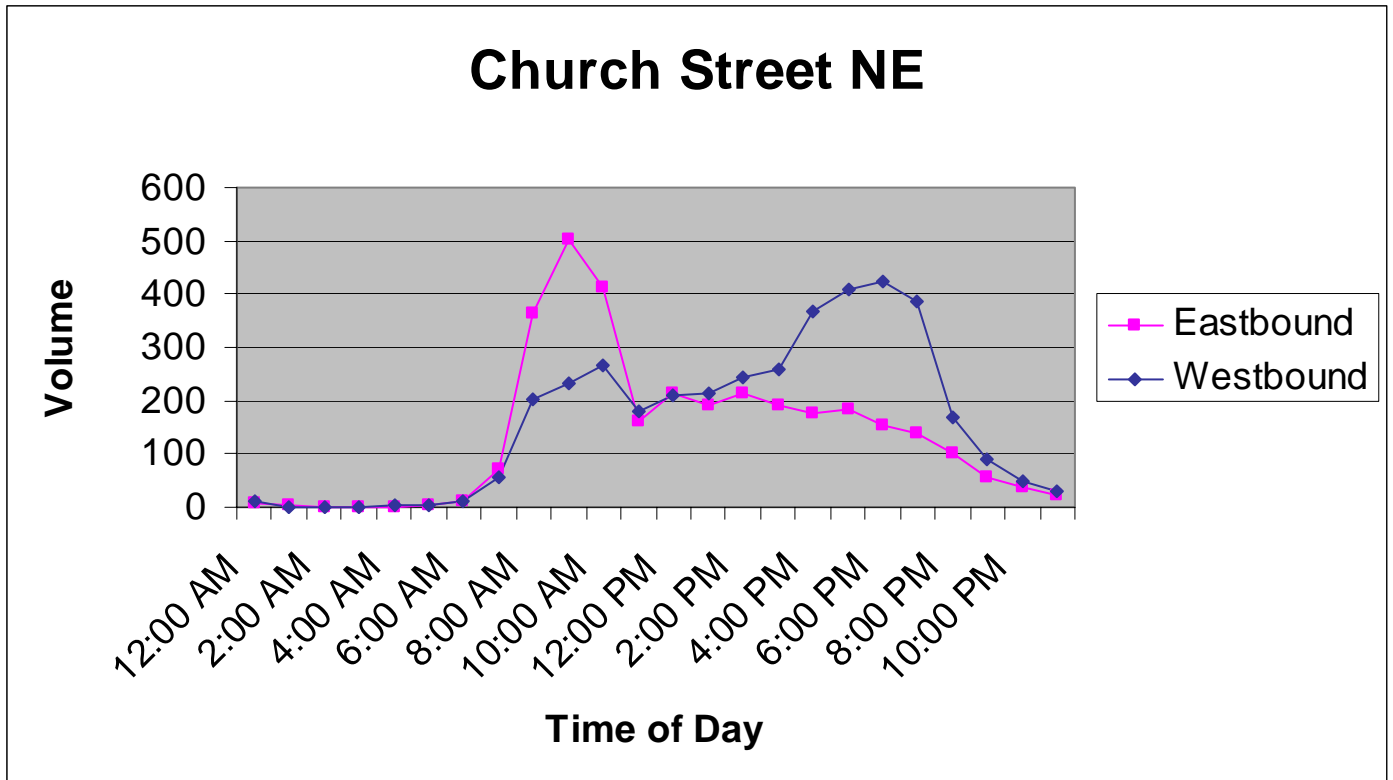




Table B-4: Volume versus Time of Day – Church Street, NE





Appendix C: Glossary

Speeding Hours:	Specific times of day when maximum number of drivers are speeding
AWDT:	Average Weekday Daily Traffic, includes daily (24 hours) traffic for weekdays (Monday - Friday)
K-Factor:	Portion of ADT which occurs during the peak hour
% Peak Traffic:	K-factor expressed in terms of percentage
AADT:	Average Annual Daily Traffic: average of ADT counts collected over the course of the entire year
AAWDT:	Average Annual Weekday Daily Traffic: AADT only for weekdays (Monday- Friday)

Town of Vienna: Department of Public Works
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Appendix D: Traffic Counts from TSC Commissioner Kenney

Speed Limit assumed to be 25mph UON		Traffic Counts												
Measured on a 24hr period UON		Direction		Speed (mph)							Speed Sum			
Description						25-29				Total Vol.				
			Date	<=25	%		%	>30	%		Mode	AVG	85%	% @ +50mph
100 Block	St Andrews Drive NE	NB	07/08/04	46	29.68%	39	25.16%	70	45.16%	155	25	29	38.67	3.87%
100 Block	St Andrews Drive NE	SB	07/21/04	76	24.52%	110	35.48%	124	40.00%	310	25	29	34.78	1.61%
300 Block	Beulah Road NE	NB	02/04/05	632	10.46%	1210	20.03%	4200	69.51%	6042	0	32	37.97	0.41%
500 Block	Beulah Road NE	NB	06/28/00	742	14.51%	1158	22.64%	3215	62.85%	5115	0	33	40.62	6.00%
3-400 Block	Broadleaf Dr NE	EB	06/12/00	176	20.98%	396	47.20%	267	31.82%	839	25	28	33.33	0.12%
3-400 Block	Broadleaf Dr NE	WB	06/12/00	94	12.91%	307	42.17%	327	44.92%	728	25	30	34.54	0.69%
300 Block	Center Street N	SB	07/12/00	739	61.94%	349	29.25%	105	8.80%	1193	20	24	28.94	0.59%
300 Block	Center Street N	NB	07/12/00	675	58.24%	387	33.39%	97	8.37%	1159	20	24	29.01	0.26%
300 Block	Center Street N	SB	10/16/00	276	18.10%	729	47.80%	520	34.10%	1525	25	26	28.98	0.79%
300 Block	Center Street N	NB	10/16/00	440	27.60%	549	34.44%	605	37.95%	1594	25	26	29.86	0.31%
200 Block	Church Street NE	EB	05/31/01	1743	38.21%	1937	42.46%	882	19.33%	4562	25	26	31.47	0.28%
200 Block	Church Street NE	WB	05/31/01	2300	57.06%	1125	27.91%	606	15.03%	4031	20	25	30.02	0.47%
300 Block	Church Street NE	EB	05/31/01	1743	38.21%	1937	42.46%	882	19.33%	4562	25	24	26.97	0.28%
300 Block	Church Street NE	WB	05/31/01	2300	57.06%	1125	27.91%	606	15.03%	4031	20	22	25.52	0.47%
500 Block	Church Street NE	EB	06/04/01	299	12.45%	765	31.86%	1337	55.69%	2401	30	29	32.76	2.00%
500 Block	Church Street NE	WB	06/04/01	563	20.71%	800	29.42%	1356	49.87%	2719	25	28	33.70	4.19%
500 Block	Church Street NE	EB	11/13/07	1227	46.13%	978	36.77%	455	17.11%	2660	25	26	30.99	1.95%
500 Block	Church Street NE	WB	11/13/07	478	23.89%	739	36.93%	784	39.18%	2001	25	29	34.84	1.80%

Town of Vienna: Department of Public Works

Traffic Calming Study



Speed Limit assumed to be 25mph UON		Traffic Counts (Ctnd.)												
Measured on a 24hr period UON		Direction		Speed (mph)							Speed Sum			
Description										Total Vol.				
			Date	</=25	%	25-29	%	>30	%		Mode	AVG	85%	% @ +50mph
100 Block	East Street NE	SB	11/19/07	1669	70.66%	459	19.43%	234	9.91%	2362	20	24	28.69	2.07%
100 Block	East Street NE	NB	11/19/07	1241	69.52%	339	18.99%	205	11.48%	1785	20	24	29.07	2.24%
200 Block	East Street NE	SB	11/13/07	486	25.01%	990	50.95%	467	24.03%	1943	25	28	32.26	0.67%
200 Block	East Street NE	NB	11/19/07	905	30.81%	1285	43.75%	747	25.43%	2937	25	28	33.17	2.38%
300 Block	Glyndon St NE	NB	05/30/07	552	15.25%	1559	43.07%	1509	41.69%	3620	0	29	34.29	0.50%
300 Block	Glyndon St NE	SB	06/04/07	255	25.71%	387	39.01%	350	35.28%	992	0	28	33.96	0.20%
400 Block	Glyndon Street NE	SB	09/13/00	78	18.84%	124	29.95%	212	51.21%	414	30	30	36.43	1.21%
400 Block	Glyndon Street NE	NB	09/13/00	266	57.45%	136	29.37%	61	13.17%	463	20	24	29.69	1.30%
300 Block	John Marshall Rd NE	EB	10/17/06	152	31.21%	191	39.22%	144	29.57%	487	0			1.23%
300 Block	John Marshall Rd NE	WB	10/17/06	102	34.93%	66	22.60%	124	42.47%	292	0			4.79%
400 Block	John Marshall Rd NE	WB	10/18/06	115	47.52%	80	33.06%	47	19.42%	242	25	26	31.91	2.07%
400 Block	John Marshall Rd NE	EB	10/23/06	122	31.52%	148	38.24%	117	30.23%	387	0			1.03%
400 Block	John Marshall Rd NE	WB	06/04/07	240	38.40%	234	37.44%	151	24.16%	625	0	27	33.01	1.60%
400 Block	John Marshall Rd NE	EB	06/04/07	2256	67.06%	792	23.54%	316	9.39%	3364	0	24	28.81	1.55%
400 Block	MacArthur Ave NE	EB	10/23/06	48	43.24%	26	23.42%	37	33.33%	111	0			1.80%
400 Block	MacArthur Ave NE	WB	10/23/06	56	37.84%	51	34.46%	41	27.70%	148	0			1.35%
500 Block	MacArthur Ave NE	EB	10/19/06	172	63.70%	64	23.70%	34	12.59%	270	0			2.22%
500 Block	MacArthur Ave NE	WB	10/19/06	181	72.98%	42	16.94%	25	10.08%	248	0			1.61%
700 Block	McKinley St NE	NB	01/14/08	891	29.32%	1663	54.72%	485	15.96%	3039	25	27	30.42	1.09%
700 Block	McKinley St NE	SB	01/14/08	222	39.22%	224	39.58%	120	21.20%	566	25	27	32.70	2.12%

Town of Vienna: Department of Public Works

Traffic Calming Study



Speed Limit assumed to be 25mph UON		Traffic Counts (Ctnd.)												
Measured on a 24hr period UON		Direction		Speed (mph)							Speed Sum			
Description										Total Vol.				% @ +50mph
			Date	</=25	%	25-29	%	>30	%		Mode	AVG	85%	
100 Block	Mill Street NE	NB	09/23/06	1369	65.69%	548	26.30%	167	8.01%	2084	0	23	28.67	0.72%
100 Block	Mill Street NE	SB	09/22/06	1068	69.08%	366	23.67%	112	7.24%	1546	0	22	28.36	0.13%
300 Block	Mill Street NE	NB	09/22/05	1039	76.96%	177	13.11%	134	9.93%	1350	0	21	28.06	0.96%
300 Block	Mill Street NE	SB	09/22/05	1125	78.45%	181	12.62%	128	8.93%	1434	0	22	27.59	0.63%
300 Block	Old Courthouse Rd NE	NB	09/13/05	427	8.18%	1690	32.36%	3105	59.46%	5222	30	31	35.94	0.25%
300 Block	Old Courthouse Rd NE	SB	09/13/05	520	11.16%	1811	38.88%	2327	49.96%	4658	25	31	34.97	1.67%
200 Block	Park Street NE	NB	11/14/06	775	61.46%	214	16.97%	272	21.57%	1261	0			5.87%
200 Block	Park Street NE	SB	11/14/06	1039	50.93%	582	28.53%	419	20.54%	2040	0			0.98%
300 Block	Park Street NE	SB	11/14/06	140	19.44%	224	31.11%	356	49.44%	720	25	31	37.72	3.19%
300 Block	Park Street NE	NB	11/15/06	116	14.74%	333	42.31%	338	42.95%	787	25	30	34.98	1.91%
300 Block	Park Street NE	SB	05/30/07	544	55.01%	300	30.33%	145	14.66%	989	20	25	29.94	1.62%
300 Block	Park Street NE	NB	05/30/07	432	36.49%	492	41.55%	260	21.96%	1184	25	27	32.34	1.18%
400 Block	Park Street NE	SB	11/15/06	35	77.78%	4	8.89%	6	13.33%	45	0			2.22%
300 Block	Ayrhill Ave NW	WB	01/08/02	546	58.58%	306	32.83%	80	8.58%	932	20	24	29.02	0.32%
300 Block	Ayrhill Ave NW	EB	01/08/02	297	50.08%	201	33.90%	95	16.02%	593	25	25	30.47	1.69%
600 Block	Blackstone Terrace, NW	EB	10/04/00	71	71.72%	14	14.14%	14	14.14%	99	15	21	25.20	1.01%
600 Block	Blackstone Terrace, NW	WB	10/04/00	54	72.00%	8	10.67%	13	17.33%	75	15	21	27.69	2.67%
600 Block	Blackstone Terrace, NW	WB	06/12/01	75	66.37%	18	15.93%	20	17.70%	113	20	22	26.89	1.77%
600 Block	Blackstone Terrace, NW	EB	06/12/01	85	89.47%	8	8.42%	2	2.11%	95	15	18	19.84	1.05%
600 Block	Blackstone Terrace, NW	EB	07/25/01	61	64.89%	16	17.02%	17	18.09%	94	15	22	26.95	2.13%

Town of Vienna: Department of Public Works
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Speed Limit assumed to be 25mph UON		Traffic Counts (Ctnd.)												
Measured on a 24hr period UON		Direction		Speed (mph)							Speed Sum			
Description			Date	<=25	%	25-29	%	>30	%	Total Vol.	Mode	AVG	85%	% @ +50mph
600 Block	Blackstone Terrace, NW	WB	07/25/01	66	69.47%	23	24.21%	6	6.32%	95	15	20	23.71	2.11%
600 Block	Blackstone Terrace, NW	WB	04/18/06	81	74.31%	15	13.76%	13	11.93%	109	0	23	28.88	3.67%
600 Block	Blackstone Terrace, NW	EB	04/18/06	97	76.98%	24	19.05%	5	3.97%	126	0	22	27.10	0.79%
100 Block	Church St NW									7788			33.00	
300 Block	Holmes Dr NW	SB	06/07/00	22	59.46%	5	13.51%	10	27.03%	37	20	25	32.92	10.81%
300 Block	Holmes Dr NW	NB	06/07/00	79	53.74%	39	26.53%	29	19.73%	147	20	23	27.67	2.04%
300 Block	Holmes Dr NW	SB	06/14/01	73	55.73%	41	31.30%	17	12.98%	131	20	22	25.18	0.76%
300 Block	Holmes Dr NW	NB	06/14/01	62	63.27%	15	15.31%	21	21.43%	98	20	23	30.00	5.10%
400 Block	Holmes Dr NW	SB	10/16/00	220	56.99%	110	28.50%	56	14.51%	386	20	22	25.41	1.04%
400 Block	Holmes Dr NW	NB	10/16/00	218	65.27%	80	23.95%	36	10.78%	334	20	22	24.62	2.10%
400 Block	Holmes Dr NW	SB	06/11/01	238	76.53%	37	11.90%	36	11.58%	311	15	20	24.06	1.61%
400 Block	Holmes Dr NW	NB	06/11/01	254	63.34%	101	25.19%	46	11.47%	401	20	22	24.80	1.25%
400 Block	Holmes Dr NW	SB	07/23/01	217	84.77%	27	10.55%	12	4.69%	256	20	19	20.61	0.39%
400 Block	Holmes Dr NW	NB	07/23/01	168	49.27%	126	36.95%	47	13.78%	341	25	23	25.34	0.88%
600 Block	John Marshal Dr NW	EB	10/11/00	80	51.95%	35	22.73%	39	25.32%	154	20	25	35.45	4.55%
600 Block	John Marshal Dr NW	WB	10/11/00	219	64.99%	81	24.04%	37	10.98%	337	15	23	29.16	0.59%
600 Block	John Marshal Dr NW	EB	06/14/01	95	48.72%	53	27.18%	47	24.10%	195	20	24	28.27	2.05%
600 Block	John Marshal Dr NW	WB	06/14/01	396	83.37%	51	10.74%	28	5.89%	475	15	18	21.26	0.63%
600 Block	John Marshal Dr NW	EB	07/25/01	87	53.70%	45	27.78%	30	18.52%	162	20	23	27.08	1.23%
600 Block	John Marshal Dr NW	WB	07/25/01	98	49.75%	65	32.99%	34	17.26%	197	25	23	26.67	1.52%
600 Block	John Marshal Dr NW	EB	09/11/01	68	47.89%	54	38.03%	20	14.08%	142	25	23	25.38	2.11%
600 Block	John Marshal Dr NW	WB	09/11/01	96	54.86%	43	24.57%	36	20.57%	175	20	23	27.94	2.29%
600 Block	John Marshal Dr NW	EB	09/18/01	66	37.71%	53	30.29%	56	32.00%	175	25	26	31.25	2.86%
600 Block	Blackstone Terrace, NW	WB	07/25/01	66	69.47%	23	24.21%	6	6.32%	95	15	20	23.71	2.11%

Town of Vienna: Department of Public Works
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Speed Limit assumed to be 25mph UON		Traffic Counts (Ctnd.)												
Measured on a 24hr period UON		Direction		Speed (mph)							Speed Sum			
Description										Total Vol.				% @
			Date	</=25	%	25-29	%	>30	%		Mode	AVG	85%	+50mph
700 Block	John Marshal Dr NW	EB	10/02/00	304	73.97%	67	16.30%	40	9.73%	411	20	21	23.88	0.49%
700 Block	John Marshal Dr NW	WB	10/02/00	359	74.79%	72	15.00%	49	10.21%	480	20	21	23.90	1.67%
700 Block	John Marshal Dr NW	EB	06/11/01	309	80.47%	44	11.46%	31	8.07%	384	20	20	22.48	2.34%
700 Block	John Marshal Dr NW	WB	06/11/01	318	67.80%	83	17.70%	68	14.50%	469	20	22	25.36	3.62%
700 Block	John Marshal Dr NW	EB	07/25/01	213	70.07%	59	19.41%	32	10.53%	304	20	22	24.35	2.63%
700 Block	John Marshal Dr NW	WB	07/25/01	276	71.69%	62	16.10%	47	12.21%	385	20	22	24.63	2.86%
	Lawyers Rd NW (N of Church St)									14289			38.00	
400 Block	Malcolm Road NW	WB	08/08/01	1050	55.53%	447	23.64%	394	20.84%	1891	20	23	28.08	1.59%
300 Block	Nutley Street NW	NB	04/22/04	747	28.99%	1043	40.47%	787	30.54%	2577	25	27	33.35	0.50%
300 Block	Nutley Street NW	SB	04/22/04	785	32.34%	830	34.20%	812	33.46%	2427	25	27	34.19	zz1.77%
400 Block	Orchard Street NW	WB	12/06/01	260	79.75%	57	17.48%	9	2.76%	326	20	22	26.50	0.00%
400 Block	Orchard Street NW	EB	12/06/01	228	69.72%	76	23.24%	23	7.03%	327	20	23	28.29	1.22%
600 Block	Tazewell Rd NW	WB	10/05/00	89	78.07%	13	11.40%	12	10.53%	114	15	15	20.32	0.88%
600 Block	Tazewell Rd NW	EB	10/05/00	89	78.07%	13	11.40%	12	10.53%	114	20	20	23.54	0.88%
600 Block	Tazewell Rd NW	WB	06/12/01	61	56.48%	32	29.63%	15	13.89%	108	20	22	25.18	3.70%
600 Block	Tazewell Rd NW	EB	06/12/01	29	40.85%	27	38.03%	15	21.13%	71	25	25	28.61	4.23%
600 Block	Tazewell Rd NW	WB	08/02/01	76	73.79%	15	14.56%	12	11.65%	103	15	19	24.35	0.97%
600 Block	Tazewell Rd NW	EB	08/02/01	46	63.89%	19	26.39%	7	9.72%	72	20	21	24.50	0.00%
600 Block	Tazewell Rd NW	WB	09/10/07	64	70.33%	16	17.58%	11	12.09%	91	0	23	28.66	1.10%
600 Block	Tazewell Rd NW	EB	09/10/07	43	63.24%	22	32.35%	3	4.41%	68	0	23	28.36	0.00%
600 Block	Upham Place NW	EB	08/21/00	38	16.52%	74	32.17%	118	51.30%	230	25	30	36.88	0.87%
600 Block	Upham Place NW	WB	08/21/00	23	7.72%	36	12.08%	239	80.20%	298	30	33	39.62	2.68%



Town of Vienna: Department of Public Works

Traffic Calming Study

Speed Limit assumed to be 25mph UON		Traffic Counts (Ctnd.)												
Measured on a 24hr period UON		Direction		Speed (mph)							Speed Sum			
Description				<=25	%	25-29	%	>30	%	Total Vol.	Mode	AVG	85%	% @ +50mph
			Date											
600 Block	Upham Place NW	EB	10/10/00	48	16.05%	72	24.08%	179	59.87%	300	30	29	33.71	3.68%
600 Block	Upham Place NW	WB	10/10/00	103	31.79%	105	32.41%	116	35.80%	345	25	26	31.21	3.09%
600 Block	Upham Place NW	WB	06/11/01	182	52.75%	113	32.75%	50	14.49%	345	20	23	25.42	2.90%
600 Block	Upham Place NW	EB	06/11/01	164	77.00%	39	18.31%	10	4.69%	213	20	20	22.69	0.94%
600 Block	Upham Place NW	EB	07/23/01	146	77.66%	33	17.55%	9	4.79%	188	20	20	22.59	0.53%
600 Block	Upham Place NW	WB	07/23/01	144	47.37%	120	39.47%	40	13.16%	304	25	23	25.27	1.97%
200 Block	Walnut Lane NW (one way)	EB	07/08/02	671	92.55%	41	5.66%	13	1.79%	725	15	17	23.97	0.28%
200 Block	Walnut Lane NW (one way)	EB	09/04/02	628	84.30%	85	11.41%	32	4.30%	745	20	19	25.31	1.21%
200 Block	Walnut Lane NW (one way)	EB	10/08/02	630	80.98%	114	14.65%	34	4.37%	778	20	22	26.37	0.26%
200 Block	Walnut Lane NW (one way)	EB	04/22/04	831	98.69%	7	0.83%	4	0.48%	842	15	17	19.95	0.00%
400 Block	West Street NW	EB	05/08/07	72	25.09%	99	34.49%	116	40.42%	287	0	30	37.72	4.88%
400 Block	West Street NW	WB	05/08/07	135	27.16%	132	26.56%	230	46.28%	497	0	31	38.94	5.03%
500 Block	Windover Ave NW	EB	11/14/06	863	45.09%	669	34.95%	382	19.96%	1914	0			1.25%
500 Block	Windover Ave NW	WB	11/13/06	405	42.19%	325	33.85%	230	23.96%	960	0			2.60%
200 Block	Adahi Road SE	EB	09/18/06	99	26.47%	104	27.81%	171	45.72%	374	0	31	38.80	6.68%
200 Block	Adahi Road SE	WB	09/19/06	168	22.95%	276	37.70%	288	39.34%	732	0	29	34.84	1.09%
200 Block	Adahi Road SE	EB	07/03/06	122	25.74%	188	39.66%	164	34.60%	474	0	30	35.77	3.16%
200 Block	Adahi Road SE	WB	07/03/06	81	21.72%	125	33.51%	167	44.77%	373	0	31	38.25	2.95%
200 Block	Adahi Road SE	EB	07/31/06	103	40.71%	87	34.39%	63	24.90%	253	0	26	32.41	0.79%
200 Block	Adahi Road SE	WB	08/01/06	286	53.86%	112	21.09%	133	25.05%	531	0	27	33.81	4.52%
300 Block	Ayito Road SE	WB	08/02/01	106	77.37%	23	16.79%	8	5.84%	137	20	19	22.77	0.00%
300 Block	Ayito Road SE	EB	08/02/01	57	82.61%	4	5.80%	8	11.59%	69	15	18	22.56	0.00%

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Measured on a 24hr period UON		Direction		Speed (mph)							Speed Sum			
Description			Date	<=25	%	25-29	%	>30	%	Total Vol.	Mode	AVG	85%	% @ +50mph
3-400 Block	Branch Road SE	SB	01/13/04	194	9.56%	684	33.71%	1151	56.73%	2029	30	31	36.26	1.97%
3-400 Block	Branch Road SE	NB	01/13/04	233	10.43%	759	33.99%	1241	55.58%	2233	30	31	36.90	1.57%
500 Block	Center Street S	SB	06/08/05	403	37.21%	271	25.02%	409	37.77%	1083	25	29	36.71	5.08%
500 Block	Center Street S	NB	06/08/05	141	14.17%	342	34.37%	512	51.46%	995	25	31	36.40	1.91%
300 Block	East Street SE	SB	06/14/00	102	18.78%	172	31.68%	269	49.54%	543	25	28	36.46	0.55%
300 Block	East Street SE	NB	06/14/00	66	12.55%	199	37.83%	261	49.62%	526	25	28	35.40	0.57%
	East Street SE at Hines	SB	03/10/03	173	38.11%	131	28.85%	150	33.04%	454	25	24	34.05	1.10%
	East Street SE at Hines	NB	03/10/03	86	19.50%	134	30.39%	221	50.11%	441	30	27	35.47	0.91%
100 Block	Echols Street SE	NB	04/12/06	93	16.91%	261	47.45%	196	35.64%	550	25	29	33.89	0.73%
100 Block	Echols Street SE	SB	04/12/06	79	12.82%	223	36.20%	314	50.97%	616	25	31	37.21	2.92%
1000 Block	Echols Street SE	EB	10/01/01	149	19.63%	293	38.60%	317	41.77%	759	25	27	30.05	2.24%
1000 Block	Echols Street SE	WB	10/01/01	166	19.06%	388	44.55%	317	36.39%	871	25	26	29.03	0.23%
1000 Block	Electric Avenue SE	NB	06/16/03	372	10.40%	1307	36.55%	1897	53.05%	3576	30	30	34.81	0.95%
1000 Block	Electric Avenue SE	SB	06/16/03	635	18.84%	1574	46.69%	1162	34.47%	3371	25	28	33.56	0.62%
1000 Block	Electric Avenue SE	NB	08/29/07	514	15.70%	632	19.30%	2128	65.00%	3274	30	32	38.77	2.23%
1000 Block	Electric Avenue SE	SB	08/29/07	476	15.18%	820	26.15%	1840	58.67%	3136	30	31	37.61	1.37%
300 Block	Follin lane SE	NB	11/13/02	246	8.07%	631	20.69%	2173	71.25%	3050	30	30	38.56	0.36%
3-400 Block	Glyndon Street SE	NB	11/18/02	46	25.56%	49	27.22%	85	47.22%	180	30	27	35.83	1.11%
3-400 Block	Glyndon Street SE	SB	11/18/02	109	36.09%	114	37.75%	79	26.16%	302	25	25	33.37	2.98%
3-400 Block	Glyndon Street SE	NB	05/07/03	96	52.17%	63	34.24%	25	13.59%	184	20	23	29.79	0.54%
3-400 Block	Glyndon Street SE	SB	05/07/03	166	52.37%	104	32.81%	47	14.83%	317	20	23	29.97	1.26%

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Measured on a 24hr period UON		Direction		Speed (mph)							Speed Sum			
Description			Date	<=25	%	25-29	%	>30	%	Total Vol.	Mode	AVG	85%	% @ +50mph
600 Block	Glyndon Street SE	NB	08/18/06	86	85.15%	11	10.89%	4	3.96%	101	0			0.00%
600 Block	Glyndon Street SE	SB	08/18/06	28	80.00%	4	11.43%	3	8.57%	35	0			0.00%
700 Block	Glyndon Street SE	NB	01/14/03	31	67.39%	7	15.22%	8	17.39%	46	20	23	32.75	6.52%
700 Block	Glyndon Street SE	NB	08/24/06	77	73.33%	17	16.19%	11	10.48%	105	0			0.95%
700 Block	Glyndon Street SE	SB	08/23/06	114	92.68%	6	4.88%	3	2.44%	123	0			0.00%
800 Block	Glyndon Street SE	NB	01/14/03	87	25.36%	166	48.40%	90	26.24%	343	25	25	32.54	0.29%
800 Block	Glyndon Street SE	NB	09/20/06	198	73.06%	39	14.39%	34	12.55%	271	0			2.58%
800 Block	Glyndon Street SE	SB	09/20/06	100	46.08%	49	22.58%	68	31.34%	217	0			4.15%
1000 Block	Glyndon Street SE	NB	07/23/01	170	55.37%	62	20.20%	75	24.43%	307	20	22	28.28	0.98%
1000 Block	Glyndon Street SE	SB	07/12/01	116	33.92%	108	31.58%	118	34.50%	342	25	25	29.83	2.05%
1000 Block	Glyndon Street SE	NB	05/14/02	126	62.07%	47	23.15%	30	14.78%	203	20	22	29.95	1.97%
1000 Block	Glyndon Street SE	SB	05/14/02	219	63.11%	99	28.53%	29	8.36%	347	20	22	28.84	0.86%
1000 Block	Glyndon Street SE	NB	09/16/02	127	59.91%	60	28.30%	25	11.79%	212	20	21	29.43	0.47%
1000 Block	Glyndon Street SE	SB	09/16/02	90	31.58%	122	42.81%	73	25.61%	285	25	24	32.52	0.35%
1000 Block	Glyndon Street SE	NB	06/26/06	134	50.19%	74	27.72%	59	22.10%	267	0			3.00%
1000 Block	Glyndon Street SE	SB	08/02/06	18	66.67%	5	18.52%	4	14.81%	27	0			3.70%
100 Block	Harmony Drive SE	EB	03/28/00	96	60.38%	32	20.13%	31	19.50%	159	20	22	27.38	2.52%
100 Block	Harmony Drive SE	WB	03/28/00	60	81.08%	9	12.16%	5	6.76%	74	20	19	22.11	2.70%
100 Block	Harmony Drive SE	EB	05/30/01	103	78.03%	17	12.88%	12	9.09%	132	15	20	23.21	3.03%
100 Block	Harmony Drive SE	WB	05/30/01	110	64.33%	42	24.56%	19	11.11%	171	15	21	24.71	0.58%
100 Block	Harmony Drive SE	WB	06/06/01	126	75.45%	33	19.76%	8	4.79%	167	20	20	22.92	2.40%
100 Block	Harmony Drive SE	EB	08/02/01	79	79.80%	13	13.13%	7	7.07%	99	20	20	22.48	2.02%
100 Block	Harmony Drive SE	WB	08/02/01	130	72.22%	35	19.44%	15	8.33%	180	20	20	23.79	0.00%
100 Block	Harmony Drive SE	EB	09/18/01	66	59.46%	12	10.81%	33	29.73%	111	15	23	32.97	2.70%

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Measured on a 24hr period UON		Direction		Speed (mph)							Speed Sum			
Description			Date	<=25	%	25-29	%	>30	%	Total Vol.	Mode	AVG	85%	% @ +50mph
500 Block	Hine Street SE	EB	03/04/03	84	58.33%	46	31.94%	14	9.72%	144	20	22	29.17	1.39%
500 Block	Hine Street SE	WB	03/04/03	68	28.81%	100	42.37%	68	28.81%	236	25	25	33.20	0.42%
	Hines St SE at Follin Ln	EB	11/13/02	14	60.87%	2	8.70%	7	30.43%	23	10	21	36.38	8.70%
100 Block	Kingsley Road SE	EB	07/31/00	303	14.46%	880	41.98%	913	43.56%	2096	25	27	29.65	0.62%
100 Block	Kingsley Road SE	WB	07/31/00	553	27.00%	882	43.07%	613	29.93%	2048	25	25	28.71	0.73%
1000 Block	Kramer Drive SE	SB	05/18/06	81	87.10%	5	5.38%	7	7.53%	93	15	19	24.30	1.08%
1000 Block	Kramer Drive SE	NB	05/18/06	58	74.36%	12	15.38%	8	10.26%	78	20	23	28.46	1.28%
200 Block	Locust Street SE	WB	08/07/01	897	36.67%	856	35.00%	693	28.33%	2446	25	25	29.14	1.88%
200 Block	Locust Street SE	WB	12/11/01	838	28.90%	1107	38.17%	955	32.93%	2900	25	26	29.53	1.55%
900 Block	Lullaby Lane SE	NB	06/06/01	56	54.37%	25	24.27%	22	21.36%	103	20	23	28.48	2.91%
900 Block	Lullaby Lane SE	SB	06/06/01	54	59.34%	25	27.47%	12	13.19%	91	20	22	25.17	1.10%
100 Block	Moore Ave SE	WB	10/22/03	574	42.77%	477	35.54%	291	21.68%	1342	25	24	32.70	1.64%
100 Block	Moore Ave SE	EB	10/22/03	166	28.72%	169	29.24%	243	42.04%	578	25	29	45.93	11.76%
100 Block	Moore Ave SE	WB	11/11/03	405	31.81%	548	43.05%	320	25.14%	1273	25	25	33.10	1.41%
100 Block	Moore Ave SE	EB	11/11/03	812	43.17%	748	39.77%	321	17.07%	1881	23	25	30.79	0.53%
200 Block	Moore Ave SE	WB	10/17/02	170	44.97%	108	28.57%	100	26.46%	378	25	25	34.92	5.03%
200 Block	Moore Ave SE	EB	10/17/02	421	74.25%	97	17.11%	49	8.64%	567	20	21	28.14	0.88%
200 Block	Moore Ave SE	EB	01/14/03	292	71.92%	72	17.73%	42	10.34%	406	15	19	28.69	0.99%
300 Block	Moore Ave SE	WB	01/14/03	144	65.16%	56	25.34%	21	9.50%	221	20	20	28.92	0.90%
300 Block	Niblick Dr SE	SB	02/19/02	122	19.24%	216	34.07%	296	46.69%	634	25	27	30.94	0.79%

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Measured on a 24hr period UON		Direction		Speed (mph)							Speed Sum			
Description			Date	<=25	%	25-29	%	>30	%	Total Vol.	Mode	AVG	85%	% @ +50mph
300 Block	Niblick Dr SE	NB	02/19/02	53	10.25%	154	29.79%	310	59.96%	517	30	29	32.22	0.39%
5-600 Block	Niblick Dr SE	SB	11/14/01	59	14.82%	110	27.64%	229	57.54%	398	30	29	32.98	2.26%
5-600 Block	Niblick Dr SE	NB	11/14/01	137	21.92%	284	45.44%	204	32.64%	625	25	26	29.03	1.60%
5-600 Block	Niblick Dr SE	SB	09/16/02	220	61.28%	109	30.36%	30	8.36%	359	20	22	28.91	0.28%
5-600 Block	Niblick Dr SE	NB	09/16/02	543	85.24%	75	11.77%	19	2.98%	637	20	18	24.97	0.47%
5-600 Block	Niblick Dr SE	SB	06/10/03	64	91.43%	3	4.29%	3	4.29%	70	15	17	23.27	2.86%
5-600 Block	Niblick Dr SE	NB	06/10/03	94	79.66%	16	13.56%	8	6.78%	118	15	19	26.97	1.69%
200 Block	Park Street SE	SB	12/11/01	1732	34.22%	1949	38.50%	1381	27.28%	5062	25	24	28.55	0.41%
200 Block	Park Street SE	SB	08/07/01	1887	38.38%	1830	37.23%	1199	24.39%	4916	25	24	28.14	0.81%
800 Block	Park Street SE	NB	11/20/02	1333	24.64%	1927	35.62%	2150	39.74%	5410	25	26	34.29	1.15%
800 Block	Park Street SE	SB	11/20/02	1281	23.14%	2181	39.40%	2074	37.46%	5536	0	0	0.00	0.23%
800 Block	Park Street SE	NB	07/06/06	968	18.73%	1655	32.02%	2546	49.26%	5169	0	31	38.18	5.26%
800 Block	Park Street SE	SB	07/06/06	1208	22.55%	1628	30.40%	2520	47.05%	5356	0	30	36.53	2.99%
300 Block	Park Street SE (Rt Turn)	NB	08/07/01	2917	85.44%	419	12.27%	78	2.28%	3414	20	20	20.46	0.26%
300 Block	Park Street SE (Rt Turn)	NB	12/11/01	1833	54.05%	1274	37.57%	284	8.38%	3391	20	23	24.62	0.62%
300 Block	Park Street SE (Straight)	NB	08/07/01	647	16.16%	1481	36.99%	1876	46.85%	4004	25	27	30.44	1.30%
300 Block	Park Street SE (Straight)	NB	12/11/01	700	19.21%	1320	36.23%	1623	44.55%	3643	25	28	31.79	2.85%
600 Block	Pine Street SE	WB	04/03/02	41	71.93%	11	19.30%	5	8.77%	57	20	20	28.39	1.75%
600 Block	Pine Street SE	EB	04/03/02	80	69.57%	29	25.22%	6	5.22%	115	20	20	28.06	0.00%
1000 Block	Polly St SE	WB	04/20/06	11	27.50%	14	35.00%	15	37.50%	40	25	29	34.09	2.50%
1000 Block	Polly St SE	EB	04/20/06	30	83.33%	3	8.33%	3	8.33%	36	15	22	26.00	2.78%
300 Block	Niblick Dr SE	NB	02/19/02	53	10.25%	154	29.79%	310	59.96%	517	30	29	32.22	0.39%



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Description			Date	<=25	%	25-29	%	>30	%	Total Vol.	Mode	AVG	85%	% @ +50mph
100 Block	Tapawingo Road SE	EB	11/21/02	160	12.18%	451	34.32%	703	53.50%	1314	30	28	34.97	0.23%
200 Block	Tapawingo Road SE	WB	11/21/02	103	25.81%	140	35.09%	156	39.10%	399	25	26	34.54	1.00%
100 Block	Elm Street SW	WB	07/30/02	100	38.17%	92	35.11%	70	26.72%	262	25	25	34.26	0.76%
100 Block	Elm Street SW	EB	07/30/02	186	41.24%	162	35.92%	103	22.84%	451	25	24	32.64	1.33%
200 Block	Elm Street SW	EB	10/23/00	116	46.96%	60	24.29%	71	28.74%	247	20	26	35.92	4.45%
200 Block	Elm Street SW	WB	10/23/00	220	65.67%	86	25.67%	29	8.66%	335	20	23	28.76	0.90%
200 Block	Elm Street SW	EB	07/31/02	440	73.21%	100	16.64%	61	10.15%	601	15	19	28.54	1.33%
200 Block	Elm Street SW	WB	07/31/02	180	57.88%	60	19.29%	71	22.83%	311	20	23	33.48	3.54%
200 Block	Elm Street SW	EB	09/04/02	502	84.23%	59	9.90%	35	5.87%	596	15	18	25.39	1.34%
200 Block	Elm Street SW	WB	09/04/02	191	73.75%	31	11.97%	37	14.29%	259	15	20	29.70	3.09%
200 Block	Elm Street SW	EB	10/03/02	377	82.31%	48	10.48%	33	7.21%	458	15	19	26.28	1.31%
200 Block	Elm Street SW	WB	10/03/02	204	53.83%	109	28.76%	66	17.41%	379	25	23	31.09	2.64%
100 Block	Kingsley Rd SW	EB	11/14/01	129	6.22%	567	27.33%	1379	66.46%	2075	30	29	37.22	0.24%
100 Block	Kingsley Rd SW	WB	11/14/01	140	6.80%	624	30.31%	1295	62.89%	2059	30	29	36.62	0.63%
100 Block	Kingsley Rd SW	EB	09/18/02	755	40.10%	893	47.42%	235	12.48%	1883	25	23	29.73	0.27%
100 Block	Kingsley Rd SW	WB	09/18/02	642	33.91%	936	49.45%	315	16.64%	1893	25	24	30.58	0.16%
100 Block	Kingsley Rd SW	EB	11/18/02	925	50.24%	710	38.57%	206	11.19%	1841	20	23	29.51	0.38%
100 Block	Kingsley Rd SW	WB	11/18/02	734	39.89%	807	43.86%	299	16.25%	1840	25	24	30.47	0.11%
600 Block	Meadow Lane SW	NB	01/16/07	58	22.14%	95	36.26%	109	41.60%	262	0	28	36.34	4.96%
600 Block	Meadow Lane SW	SB	01/16/07	57	36.77%	39	25.16%	59	38.06%	155	0	27	39.23	8.39%
700 Block	Meadow Lane SW	NB	01/16/07	30	25.00%	15	12.50%	75	62.50%	120	0	30	45.71	10.00%

Town of Vienna: Department of Public Works

Traffic Calming Study



Speed Limit assumed to be 25mph UON		Traffic Counts (Ctnd.)												
Measured on a 24hr period UON		Direction		Speed (mph)							Speed Sum			
Description										Total Vol.				% @ +50mph
			Date	<=25	%	25-29	%	>30	%		Mode	AVG	85%	
100 Block	Moore Ave SW	WB	09/19/01	296	21.25%	546	39.20%	551	39.55%	1393	25	27	34.45	1.87%
100 Block	Moore Ave SW	EB	09/19/01	339	18.21%	798	42.86%	725	38.94%	1862	25	27	34.42	1.66%
100 Block	Moore Ave SW	WB	05/30/02	338	26.00%	504	38.77%	458	35.23%	1300	25	26	34.21	1.85%
100 Block	Moore Ave SW	EB	05/30/02	454	28.52%	601	37.75%	537	33.73%	1592	25	26	34.36	2.32%
100 Block	Moore Ave SW	WB	12/17/02	1007	70.32%	308	21.51%	117	8.17%	1432	20	20	28.41	0.91%
100 Block	Moore Ave SW	EB	12/17/02	1035	51.93%	771	38.69%	187	9.38%	1993	20	22	29.27	0.40%
100 Block	Moore Ave SW	WB	06/10/03	436	32.27%	642	47.52%	273	20.21%	1351	25	24	31.64	0.44%
100 Block	Moore Ave SW	EB	06/10/03	1131	59.62%	508	26.78%	258	13.60%	1897	20	22	29.74	1.27%
1000 Block	Moore Place SW	NB	09/26/01	86	43.00%	63	31.50%	51	25.50%	200	25	24	28.13	0.50%
1000 Block	Moore Place SW	SB	09/26/01	40	33.33%	43	35.83%	37	30.83%	120	25	25	29.30	0.83%
100 Block	Oak Street SW	WB	11/11/03	155	56.57%	63	22.99%	56	20.44%	274	20	25	32.76	2.55%
100 Block	Oak Street SW	EB	11/24/03	127	64.14%	51	25.76%	20	10.10%	198	20	24	29.05	1.52%
100 Block	Patrick Street SW	EB	07/16/02	97	26.36%	138	37.50%	133	36.14%	368	25	26	34.58	2.17%
100 Block	Patrick Street SW	WB	07/16/02	91	32.62%	75	26.88%	113	40.50%	279	25	27	41.46	7.17%
100 Block	Patrick Street SW	EB	10/22/03	17	73.91%	1	4.35%	5	21.74%	23	15	23	33.88	0.00%
100 Block	Patrick Street SW	WB	10/22/03	4	33.33%	3	25.00%	5	41.67%	12	10	28	40.50	0.00%
100 Block	Patrick Street SW	EB	11/11/03	290	60.29%	131	27.23%	60	12.47%	481	20	22	29.54	1.66%
100 Block	Patrick Street SW	WB	11/11/03	139	46.80%	86	28.96%	72	24.24%	297	20	25	34.58	4.71%
100 Block	Patrick Street SW	EB	04/20/06	147	49.66%	71	23.99%	78	26.35%	296	20	27	33.65	2.70%
100 Block	Patrick Street SW	WB	04/20/06	164	50.62%	105	32.41%	55	16.98%	324	20	26	31.23	3.70%
200 Block	Patrick Street SW	WB	09/19/02	122	30.42%	142	35.41%	137	34.16%	401	25	26	34.13	2.49%
200 Block	Patrick Street SW	EB	09/19/02	125	32.30%	135	34.88%	127	32.82%	387	25	26	34.66	2.33%
100 Block	Moore Ave SW	WB	09/19/01	296	21.25%	546	39.20%	551	39.55%	1393	25	27	34.45	1.87%

Town of Vienna: Department of Public Works
Traffic Calming Study



Speed Limit assumed to be 25mph UON		Traffic Counts (Ctnd.)												
Measured on a 24hr period UON		Direction		Speed (mph)							Speed Sum			
Description			Date	<=25	%	25-29	%	>30	%	Total Vol.	Mode	AVG	85%	% @ +50mph
6-700 Block	Plum Street SW	EB	09/17/02	244	44.04%	180	32.49%	130	23.47%	554	20	24	32.83	1.81%
6-700 Block	Plum Street SW	WB	09/17/02	263	32.23%	328	40.20%	225	27.57%	816	25	25	33.54	1.59%
200 Block	Tapawingo Road SW	EB	08/01/00	170	10.92%	540	34.68%	847	54.40%	1557	30	28	31.30	0.96%
200 Block	Tapawingo Road SW	WB	08/01/00	196	12.67%	640	41.37%	711	45.96%	1547	25	27	30.09	0.39%
800 Block	Tapawingo Road SW	EB	05/24/01	89	26.02%	151	44.15%	102	29.82%	342	25	26	29.28	2.34%
800 Block	Tapawingo Road SW	WB	05/24/01	253	57.50%	98	22.27%	89	20.23%	440	20	22	27.85	2.05%
800 Block	Tapawingo Road SW	EB	09/26/01	171	53.94%	83	26.18%	63	19.87%	317	20	23	27.26	1.58%
800 Block	Tapawingo Road SW	WB	09/26/01	238	56.13%	98	23.11%	88	20.75%	424	20	22	27.53	1.42%

Town of Vienna: Department of Public Works
Traffic Calming Study



Appendix E: Traffic Counts from TSC Commissioner Springsteen

TOWN OF VIENNA, VA.
 STREET TRAFFIC COUNTS @ 24 Sept. 2002

#	Street	Direction	Date	Total Count	Peak Count per Hr	Peak Count Time	Peak per % Total Count	Speed Limit mph	% > Speed Limit	Avg Speed mph	Mode Speed mph: Max. Ind. Speed
1	Blackstone Ter., NW, 600	East	4-Oct-00	99	13	06:40	13%	25	14.1%	21	15
2	Blackstone Ter., NW, 600	East	13-Jun-01	95	9	06:03	9%	25	2.1%	18	15
3	Blackstone Ter., NW, 600	East	25-Jul-01	94	10	16:00	11%	25	18.0%	22	15
4	Blackstone Ter., NW, 600	West	4-Oct-00	75	8	09:40	11%	25	17.3%	21	15
5	Blackstone Ter., NW, 600	West	13-Jun-01	113	11	06:01	10%	25	17.7%	22	20
6	Blackstone Ter., NW, 600	West	25-Jul-01	95	10	16:00	11%	25	6.3%	20	15
7	Center St., NE, 300	North	16-Oct-00	1594	273	06:00	17%	25	37.9%	26	25
8	Center St., NE, 300	South	16-Oct-00	1525	280	07:00	18%	25	34.1%	26	25
9	Church St., NE, 300	East	31-May-01	4563	425	8:00	9%	25	19.3%	24	25
10	Church St., NE, 300	West	31-May-01	4031	482	17:00	12%	25	15.0%	22	20
11	Elm St., SW 100	East	18-Oct-01	137	28	7:30	20%	25	32.1%	24	20
12	Elm St., SW 100	East	30-07-02	451	55	08:00	12%	25	22.8%	24	25
13	Elm St., SW 100	West	18-Oct-01	452	57	17:30	13%	25	14.8%	23	25
14	Elm St., SW 100	West	30-07-02	262	42	08:00	16%	25	26.7%	25	25
15	Elm St., SW, 200	East	4-Sep-02	597	74	15:29	12%	25	5.9%	18	15
16	Elm St., SW, 200	East	31-07-02	602	56	18:00	9%	25	0.0%	19	15
17	Elm St., SW, 200	West	4-Sep-02	262	24	11:29	9%	25	14.2%	20	15
18	Elm St., SW, 200	West	31-07-02	313	31	08:00	10%	25	0.0%	23	20
19	Glydon St., SE, 1000	North	24-Jul-01	307	40	16:30	13%	25	24.4%	22	20
20	Glydon St., SE, 1000	South	24-Jul-01	342	43	08:00	13%	25	34.5%	25	25
21	Glyndon St., SE, 1000	North	16-Sep-02	212	28	16:30	13.2%	25	11.7%	21	20
22	Glyndon St., SE, 1000	South	16-Sep-02	286	42	06:30	14.7%	25	25.6%	24	25
23	Harmony Dr., SE, 100	East	28-Mar-00	160	22	08:00	14%	25	19.5%	22	20
24	Harmony Dr., SE, 100	East	30-May-01	133	17	07:00	13%	25	9.1%	20	15
25	Harmony Dr., SE, 100	East	6-Jun-01	133	17	07:00	13%	25	9.1%	20	15
26	Harmony Dr., SE, 100	East	2-Aug-01	99	15	08:30	15%	25	7.1%	20	20
27	Harmony Dr., SE, 100	East	18-Sep-01	114	55	09:00	48%	25	29.7%	23	15
28	Harmony Dr., SE, 100	West	28-Mar-00	75	10	18:00	13%	25	6.8%	19	20
29	Harmony Dr., SE, 100	West	30-May-01	171	20	17:00	12%	25	11.1%	21	15
30	Harmony Dr., SE, 100	West	6-Jun-01	168	24	07:00	14%	25	4.8%	20	20
31	Harmony Dr., SE, 100	West	2-Aug-01	180	18	17:30	10%	25	8.3%	20	20

Town of Vienna: Department of Public Works
Traffic Calming Study



TOWN OF VIENNA, VA.
STREET TRAFFIC COUNTS @ 24 Sept. 2002

#	Street	Direction	Date	Total Count	Peak Count per Hr	Peak Count Time	Peak per % Total Count	Speed Limit mph	% > Speed Limit	Avg Speed mph	Mode Speed mph: Max. Ind. Speed
32	Harmony Dr., SE, 100	West	18-Sep-01	132	40	09:00	30%	25	35.8%	25	15
33	Holmes Dr., NW, 300	North	7-Jun-00	147	23	18:00	16%	25	19.7%	25	23
34	Holmes Dr., NW, 300	North	16-Oct-00	334	86	17:30	26%	25	10.7%	22	20
35	Holmes Dr., NW, 300	North	12-Jun-01	401	79	17:00	20%	25	11.4%	22	20
36	Holmes Dr., NW, 300	North	14-Jun-01	99	13	14:00	13%	25	21.4%	23	20
37	Holmes Dr., NW, 300	North	24-Jul-01	341	77	17:30	23%	25	13.7%	23	25
38	Holmes Dr., NW, 300	South	7-Jun-00	37	5	17:00	14%	25	27.0%	25	20
39	Holmes Dr., NW, 300	South	16-Oct-00	386	58	08:30	15%	25	14.5%	22	20
40	Holmes Dr., NW, 300	South	12-Jun-01	312	42	07:00	13%	25	11.5%	20	15
41	Holmes Dr., NW, 300	South	14-Jun-01	131	13	08:00	10%	25	12.9%	22	20
42	Holmes Dr., NW, 300	South	24-Jul-01	256	36	07:30	14%	25	4.7%	19	20
43	John Marshall, NW, 600	East	11-Oct-00	155	19	15:30	12%	25	48.0%	24	20
44	John Marshall, NW, 600	East	15-Jun-01	196	22	15:00	11%	25	24.1%	24	20
45	John Marshall, NW, 600	East	25-Jul-01	163	17	15:00	10%	25	18.5	23	20
46	John Marshall, NW, 600	East	11-Sep-01	142	16	11:30	11%	25	14.0%	23	25
47	John Marshall, NW, 600	West	11-Oct-00	337	32	16:30	9%	25	35.0%	21	15
48	John Marshall, NW, 600	West	15-Jun-01	476	77	09:00	16%	25	5.9%	18	15
49	John Marshall, NW, 600	West	25-Jul-01	197	20	08:00	10%	25	17.2	23	25
50	John Marshall, NW, 600	West	11-Sep-01	175	19	15:30	11%	25	20.5%	23	20
51	John Marshall, NW, 700	East	2-Oct-00	412	68	07:00	17%	25	9.7%	21	20
52	John Marshall, NW, 700	East	11-Jun-01	384	56	7:00	15%	25	8.7%	20	20
53	John Marshall, NW, 700	East	26-Aug-01	305	36	8:00	12%	25	10.5%	22	20
54	John Marshall, NW, 700	West	2-Oct-00	480	102	17:00	21%	25	10.2%	21	20
55	John Marshall, NW, 700	West	11-Jun-01	469	73	17:00	16%	25	14.5%	22	20
56	John Marshall, NW, 700	West	26-Aug-01	385	66	17:00	17%	25	12.2%	22	20
57	Kingsley Rd., SW, 100	East	18-Sep-02	1883	324	07:30	17%	25	12.4%	23	25
58	Kingsley Rd., SW, 100	West	18-Sep-02	1894	301	16:30	16%	25	16.6%	24	25
59	Lullaby Ln, SE, 900	North	6-Jul-01	103	11	15:00	11%	25	21.3%	23	20
60	Lullaby Ln, SE, 900	South	6-Jul-01	91	16	07:00	18%	25	13.1%	22	20
61	Malcolm Rd, NW, 400	East	02-Oct-01	3199	446	8:00	14%	25	42.4%	27	25
62	Malcolm Rd, NW, 400	West	02-Oct-01	2264	282	17:00	12%	25	36.2%	26	25

Town of Vienna: Department of Public Works
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TOWN OF VIENNA, VA.
 STREET TRAFFIC COUNTS @ 24 Sept. 2002

#	Street	Direction	Date	Total Count	Peak Count per Hr	Peak Count Time	Peak per % Total Count	Speed Limit mph	% > Speed Limit	Avg Speed mph	Mode Speed mph: Max. Ind. Speed
63	Maple & Niblick, SE	West/Left	28-Mar-01	989	147	17:00	15%	30	2.0%	20	20
64	Maple & Niblick, SE	West/Left	4-Apr-01	879	114	17:00	13%	30	3.0%	20	20
65	Moore Ave, SE, 100	East	19-Sep-01	1862	269	7:30	14%	25	32.0%	27	25
66	Moore Ave, SE, 100	West	19-Sep-01	1393	196	17:30	14%	25	39.6%	27	25
67	Moore Ave, SW, 100	East	30-May-02	1592	207	7:30	13%	25	33.7%	26	25
68	Moore Ave, SW, 100	West	30-May-02	1300	147	17:30	11%	25	35.2%	26	25
69	Moore Place, SW, 100	North	27-Sep-01	200	17	6:30	9%	25	25.5%	24	25
70	Moore Place, SW, 100	South	27-Sep-01	121	16	16:30	13%	25	30.8%	25	25
71	Niblick Dr., SE, 5-600	North	16-Sep-02	643	208	14:30	32.3%	25	3.0%	18	20
72	Niblick Dr., SE, 5-600	South	16-Sep-02	359	111	07:30	30.9%	25	8.4%	22	20
73	Nutley St., SW, 100	North/Left	13-Jun-01	5888	599	17:00	10%	35	3.7%	23	25
74	Nutley St., SW, 100	North/Right	13-Jun-01	6012	442	18:00	7%	35	1.2%	21	15
75	Owaissa, SE, 300	East	31-May-01	266	43	16:00	16%	25	25.6%	25	25
76	Owaissa, SE, 300	West	31-May-01	303	36	7:00	12%	25	23.8%	24	25
77	Patrick St., SW, 100	East	08-May-01	447	43	17:30	10%	25	43.6%	27	25
78	Patrick St., SW, 100	West	08-May-01	399	57	17:30	14%	25	37.3%	27	25
79	Patrick St., SW, 200	East	16-Jul-02	369	31	15:30	8%	25	36.0%	26	25
80	Patrick St., SW, 200	East	9-Sep-02	387	35	18:30	9%	25	32.8%	26	25
81	Patrick St., SW, 200	West	9-Sep-02	402	58	17:30	14%	25	34.1%	26	25
82	Patrick St., SW, 200	West	16-Jul-02	279	36	17:30	13%	25	40.5%	27	25
82	Pine St. SE, 600	East	03-Apr-02	117	22	7:00	19%	25	5.1%	20	20
83	Pine St. SE, 600	West	03-Apr-02	57	5	11:00	9%	25	7.0%	20	200
84	Plum St., SW, 6-700	East	17-Sep-02	556	66	07:30	12%	25	23.4%	24	20
85	Plum St., SW, 6-700	West	17-Sep-02	817	100	07:30	12%	25	27.5%	25	25
86	Tapawingo Rd., SW, 800	East	27-Sep-01	318	39	7:30	12%	25	19.8%	23	20
87	Tapawingo Rd., SW, 800	West	27-Sep-01	424	43	17:30	10%	25	20.7%	22	20
88	Tazewell Rd., NW, 600	East	5-Oct-00	115	14	18:30	12%	25	10.5%	20	20
89	Tazewell Rd., NW, 600	East	12-Jun-01	72	9	7:01	13%	25	21.1%	25	25
90	Tazewell Rd., NW, 600	East	2-Aug-01	73	14	17:30	19%	25	9.7%	21	20
91	Tazewell Rd., NW, 600	West	5-Oct-00	51	8	17:30	16%	25	3.9%	18	15
92	Tazewell Rd., NW, 600	West	12-Jun-01	108	15	16:01	14%	25	13.0%	22	20



Town of Vienna: Department of Public Works **Traffic Calming Study**

TOWN OF VIENNA, VA. **STREET TRAFFIC COUNTS @ 24 Sept. 2002**

#	Street	Direction	Date	Total Count	Peak Count per Hr	Peak Count Time	Peak per % Total Count	Speed Limit mph	% > Speed Limit	Avg Speed mph	Mode Speed mph: Max. Ind. Speed
93	Tazewell Rd., NW, 600	West	2-Aug-01	103	14	16:30	14%	25	11.6%	19	15
94	Upham Pl., NW, 600	East	10-Oct-00	300	37	07:30	12%	25	59.8%	29	30
95	Upham Pl., NW, 600	East	12-Jun-01	213	28	07:00	13%	25	4.7%	20	20
96	Upham Pl., NW, 600	East	23-Jul-01	188	23	08:30	12%	25	4.8%	20	20
97	Upham Pl., NW, 600	West	10-Oct-00	325	63	17:30	19%	25	35.8%	26	25
98	Upham Pl., NW, 600	West	12-Jun-01	345	62	17:00	18%	25	14.4%	23	20
99	Upham Pl., NW, 600	West	23-Jul-01	304	54	17:30	18%	25	13.1%	23	25
100	Walnut Ln., NW, 100	One-Way	9-Jul-02	728	95	08:30	13%	25	1.8%	17	15
101	Walnut Ln., NW, 100	One-Way	4-Sep-02	747	71	08:29	10%	25	4.3%	19	20



Appendix F: Public Comments

Comments from citizens provided at the February 26, 2008 TSC Meeting, as forwarded by Town of Vienna staff:

Several issues such as comments from the residents on housekeeping, the four quads signs with the volume, direction of traffic max the minimum over time are not the same as in the PDF file posted. Suggestions were made to have the most current one be reposted to the website so everyone can work on the same sheet of music when provided the comments.

Resident asked Ms. Chu on when they can expect the correct version be posted so the residents can make their comments on it.

Resident stated that the draft version currently on the website and the handout tonight are not the same.

Ms. Julie Foley of 513 Council Ct, NE, said she is under the assumption that Church Street and East Street were going to be incorporated in the study. Her biggest concern is that they would lump Church Street and North East Street into one study but there will be no study from Beulah to East Street. She thanks the Councils that the street has a stop sign now. Another of her concern was pedestrian safety which was brought up at the last TSC meeting but she hasn't heard anything about it.

Ms. Mary Ellen Larkin of 317 Church Street, NE. read from her handout that she wasn't happy with the ATCS report. She does not understand why Branch and Beulah streets were in the study while they were under construction. A similar study was done in 1997 by Mr. Tennyson that should have been looked at instead of this new report from ATCS. Follin Lane, Tapawingo Road, Locust Street and Church Street are all in need of restricted hours during peak times. The equipment that ATCS used on Church Street for volume and speed counts were not effective because the motorists were coming almost to a complete stop when passing the device. This device is great if it's only for volume counting. She has reported the problem to the town via-email. Another of her concern is Beulah Road which needs help in slowing down the traffic. She believes the Traffic Calming Draft is not a town-wide study. With the surrounding redevelopment, Town of Vienna needs to be more proactive with Traffic Problems, Traffic Safety, and Traffic Volume.

Ms. Lois Paige lives in Church Street between Glyndon and Beulah for 10 years. The study is not indicative of the normal traffic conditions because Beulah is under construction. She needs some clarification of the Town guideline regarding speed.

Ms. Loise Paige comments that some of statistic taken from Beulah Road on page 6 of the report was irrelevant because it was under construction. There was only one day sampling on Church Street that is a valid sample. The rest of her comments will be sent via-email.

Billy Lancaster represents himself and his father of 224 and 230 Church Street, requested for the speed bump to remain due to the safety of the residents and the vehicles traveling through it.

Richard Shin lives in 238 Church Street, NE. said the data used in the report of 85 percentile is elementary type of analysis. In order to get a full picture of the report, one needs to understand the minimum and maximum, maybe 25 percentile quartiles and 75 percentile median. This information should have been put on a chart that goes from hour to hour. The report shows before-and-after

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studies, but there is not a prior data study available. Therefore this should not be called before-and-after studies. Environmental factors should be taken into consideration like Beulah Road during under construction that would have a major impact on surrounding streets. The placements of the devices are important factor in the study. Between about 8a.m and 10:30a.m shows a peak of traffic volume in which cars are at bumper to bumper. Traffic during those hours is dangerous for pedestrian because the children are being picked up by the school buses. He would like to see the raw data, which shows the time and speed of cars that go by, to be available online so the residents can download. He requested to keep the speed hump on Church Street.

Norman Grandstaff of 345 Church Street would like all the numbers on the report to be removed because Beulah Road is under construction. He has asked since 1993 to have police stationed on 200 and 300 blocks and was told that there is no place to put the speed device. He has gone out of his way to ask every single neighbor on the block to offer their driveway to do this study. He requested to have two speed humps to be put on Church Street. He got 100 percent signatures of the residents on that street for a second speed hump to be placed.

Matt Ammann of 343 Church Street, NE voiced his concern of pedestrian safety on Church Street and Beulah Road since there is just a light and no crosswalk. There is no traffic calming device on East Street to Beulah Road.

Mr. Matthew Di Fiore of 207 Owaissa Ct, SE requested the town to put more money aside to support this study because \$40,000 isn't much.

Ms. Linda of 401 Holloway Court requested for the raw data to be put online so she can see the updated data. The speed humps on these streets shouldn't be lowered but raised because the SUV drivers can fly through these humps with no problem.

Eugene Quinn 922 Circle Drive, SE. asked in 2000 and 2001 that Vienna Police Department did a speed study. He asked if the Vienna Police Department is still doing the study.

Mrs. Foley fears the information is not accurate to present to the Town Council. She feels it isn't thorough enough for decision making.

Comments Received in March / April 2008 Related to Traffic Calming Problems in Vienna

1. I was prompted to submit this commentary after reviewing the Traffic Calming Study and noticing that Kingsley Road SW was not a particular focus of the draft study.

My wife and I have lived at 608 Kingsley Road SW, for more than 30 years. Over the years we have observed traffic flow on Kingsley increase dramatically. We have had cars hit while parked in front of our home, had a car stolen and vandalized on the street and in our driveway, and routinely see a multiplicity of traffic violations within view of our front porch.

Speeding on Kingsley is at a dangerous level. Cars and trucks run through the stop sign at Kingsley and Ware Streets regularly and at all times of the day and night. Vehicles pass others crossing the double line on occasion, motorcycles speed down the hill toward Nutley, people make U-turns at

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Potterton Circle not stopping at the stop sign, commuter parking is sometimes a problem and morning rush hours are no less than chaotic.

I must compliment our Vienna Police Department on their routine enforcement activities on Kingsley in the vicinity of my home, but I realize they cannot be everywhere all the time. There has been a noticeable uptick in enforcement in recent months which judging from the number of stops has been fruitful, but again in practical terms it is not possible to patrol 24-7.

I would suggest installation of two speed humps at Potterton Circle and down the hill toward Nutley beyond Meadow near Meyers Circle. These would be of the variety of those on Kingsley after Cottage and before DeSale. These Kingsley humps would slow traffic coming up and going down the hill making the pace be closer to the 25mph speed limit.

My children are grown and gone but my grandchildren visit and there are other young people in the neighborhood who deserve the limited protection these speed humps would provide. It would be a small price for the community to pay to avert one tragic accident.

2. I was doing some research on the City of Fairfax that has quite a bit of car dealerships very close to many of its neighborhoods. Their communities' complaints are very similar to ours re: test drive zones.

In response to the residents' concerns on the growing volume and traffic violations, they created a program called Safe Neighborhoods in 2004. They assigned a liaison, a Police Officer, who has taken on the task and is the main contact for the residents of the City of Fairfax. In addition to posting the "No Test Driving" signs on the streets of residential communities, the Police officer communicated with the dealerships that residential streets are NOT to be used as test drive zone. This officer produces a report on a monthly basis of the progress and status and posts the report on the City of Fairfax Police Dept web-site, <http://www.fairfaxva.gov/Police/TrafficReport.asp>.

I believe it is an excellent program and my understanding from Kevin Bowser, Police Officer at the City of Fairfax is that the program is effective. I was in the area on a Saturday and I did not notice a lot of dealerships cars. I am hearing that dealerships are avoiding these streets.

I drove in many of the residential streets and attached is the sign posted on quite a bit of the streets. The one attached is on the corner of Mclean and Warwick which is surrounded by approximately 3 dealerships within a half mile radius.

In addition to speed monitors on OCR, the residents of OCR would like to see a program like Safe Neighborhoods implemented. We can be the test run, if you will. I would be glad to volunteer my time to get it implemented.

3. I have lived in the town of Vienna for 7 years and since the first day I have been concerned about the speeders on Creek Crossing Rd NE. Before I moved in, a speeding car knocked down 3 trees planted in front of my house between the sidewalk and the street. I regularly observe drivers going well over 40 MPH on a road which has a 25 MPH speed limit. I have communicated to the Vienna Police Chief about this in the past and I attach that exchange of emails. I cannot say I have noticed that the situation has improved.

There is a school bus stop at the corner of Country Club Drive and Creek Crossing Rd and I

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frequently see students waiting for the bus while drivers speed by at excessive speeds. It seems morning rush hour is one of the worst times for speeders

My neighbors on either side of my home are also in the town of Vienna and are also concerned. I understand that while I and my neighbors homes are in the town of Vienna, the road in front of my house is in Fairfax County. I understand that complicates the problem.

We believe that a speed hump on Creek Crossing Rd. near Country Club Drive would be helpful. We must do something to slow down the drivers on Creek Crossing Rd, even if the section of the road they are speeding on is not "technically" in the Town of Vienna (although it adjoins residences such as mine which are in the Town of Vienna)

My children have grown and have homes of their own, but I am very concerned about the safety of students and pedestrians who walk on the sidewalks of Creek Crossing Rd, including school children and small children on their bikes. The excessive speeding can only result in an accident- it is bound to happen sooner or later. If speeders can knock down the trees next to the road, they can injure young people in the same location. Do we have to have an injurious accident to get something done about this?

4. I certainly have no issue with the draft report other than it doesn't include East Street N.E. Traffic speeds during rush hours (even before the Beulah Road Project) were well over the speed limit and "cut through traffic" is egregious. Vehicles regularly do "rolling stops" at East Street N.E. & Creek Crossing as well East Street N.E. and Ayer Hill. My observations can be confirmed with the Vienna Police Department who regularly monitors these intersections and speed on East Street N.E. May I suggest that some attention by the contractor be paid to East Street N.E.

5. As a resident of East Street I can see the need for speed humps and restricted travel (during certain hours such as exist on Fairway Drive) for East Street.

Having been a member of the Kings Park Traffic Committee fifteen years ago we were the first community to take advantage of a new state law which permitted the installation of certain physical barriers to slow traffic and regulatory measures to reduce traffic during rush hours.

Even prior to the Beulah road project the volume and speed of traffic on East Street and Creek Crossing was dangerous and unacceptable. Many vehicles frequently do not stop at the stop signs on East Street N.E. & Creek Crossing as well as the stop sign on Ayer Hill at East Street N.E.

Please consider in your study the two measures suggested above. They meet all five criteria laid out as your objectives.